

TADM12_1

SAP NetWeaver AS Implementation & Operation II

SAP NetWeaver

Date	_____
Training Center	_____
Instructors	_____

Education Website	_____

Participant Handbook

Course Version: 62

Course Duration: 10 Day(s)

Material Number: 50089457



An SAP course - use it to learn, reference it for work

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About This Handbook

This handbook is intended to complement the instructor-led presentation of this course, and serve as a source of reference. It is not suitable for self-study.




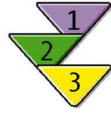

Typographic Conventions

American English is the standard used in this handbook. The following typographic conventions are also used.

Type Style	Description
<i>Example text</i>	Words or characters that appear on the screen. These include field names, screen titles, pushbuttons as well as menu names, paths, and options. Also used for cross-references to other documentation both internal (in this documentation) and external (in other locations, such as SAPNet).
Example text	Emphasized words or phrases in body text, titles of graphics, and tables
EXAMPLE TEXT	Names of elements in the system. These include report names, program names, transaction codes, table names, and individual key words of a programming language, when surrounded by body text, for example SELECT and INCLUDE.
Example text	Screen output. This includes file and directory names and their paths, messages, names of variables and parameters, and passages of the source text of a program.
Example text	Exact user entry. These are words and characters that you enter in the system exactly as they appear in the documentation.
<Example text>	Variable user entry. Pointed brackets indicate that you replace these words and characters with appropriate entries.

Icons in Body Text

The following icons are used in this handbook.

Icon	Meaning
	For more information, tips, or background
	Note or further explanation of previous point
	Exception or caution
	Procedures
	Indicates that the item is displayed in the instructor's presentation.

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Course Overview

TADM12 complements the knowledge and skills gained in TADM10. After attending TADM10, TADM12 and one of the database specific courses TADM51 (Oracle), TADM53 (MS SQL Server), TADM56 (DB2 on Win/UX) or ADM515 (MaxDB) you are well prepared for taking the certification exam **SAP Certified Technology Associate - System Administration - SAP NetWeaver 7.0 (<database>)**.

Courses TADM10 and TADM12 are largely independent of the type of operating system and database technology.

Like the other TADM courses, TADM12 comprises several individual courses (or parts thereof), which are arranged here in a way that will enable you to gain the knowledge you require as an SAP Technology Consultant as efficiently as possible.

Week 1 of course TADM12 is based on content taken from the following courses:

1. ADM110 - Installation SAP ECC 6.0
2. ADM200 - Administration AS Java
3. ADM100 - Administration AS ABAP I
4. ADM102 - Administration AS ABAP II

Week 2 of course TADM12 is based on content taken from the following courses:

1. ADM325 - SAP Software Logistics for ABAP
2. ADM102 - Administration AS ABAP II

At the end of the database-specific part of this training (TADM5#, or after ADM515, to be booked separately), there is a three-hour certification exam that covers topics from courses TADM10 and TADM12 and TADM5#/ADM515.



Caution: Note that the certification exam has been designed in such a way that the answers to all of the exam questions are contained in the folders provided for courses TADM10, TADM12, TADM5# (or ADM515). Therefore, you do not require any additional course material even if the instructor hands out other books during the course or provides additional information not contained in the course folder.

Target Audience

This course is intended for the following audiences:

- SAP Technology Consultants (Associate Level)

Course Prerequisites

Required Knowledge

- Knowledge of the content of **TADM10 - SAP NetWeaver AS Implementation & Operation I**



Course Goals

This course will prepare you to:

- Work as an Associate Consultant (Junior Consultant) within the SAP technology environment
- Install, configure and maintain SAP systems based on SAP NetWeaver AS ABAP
- Install, configure and maintain SAP systems based on SAP NetWeaver AS Java



Course Objectives

After completing this course, you will be able to:

- To process basic tasks within the technology environment of SAP systems

Unit 1

SAP ERP Application Architecture

Unit Overview

This unit describes the application SAP ERP and the architecture of SAP ERP Central Component and SAP NetWeaver. It also explains the new features of SAP ERP Central Component.



Unit Objectives

After completing this unit, you will be able to:

- Describe the Application SAP ERP 6.0 and the architecture of its components
- Describe the technical architecture of SAP ERP
- Explain the term usage type and list the different usage types
- Reflect the combination of SAP ERP 6.0 and unicode.

Unit Contents

Lesson: Introduction to Application SAP ERP 6.0	2
Lesson: Technical Overview of SAP ERP	10

Lesson: Introduction to Application SAP ERP 6.0

Lesson Overview

This lesson describes the SAP ERP 6.0 and its architecture.



Lesson Objectives

After completing this lesson, you will be able to:

- Describe the Application SAP ERP 6.0 and the architecture of its components

Business Example

ABC limited, a petrochemical company, uses SAP to manage its data. The company now wants to start using all the benefits from the latest application SAP ERP 6.0. As the system administrator of ABC, you need to install the SAP ERP Central Component 6.0 (SAP ECC 6.0). Before installing SAP ECC 6.0, you should learn about application SAP ERP and become familiar with the architecture of its components.

SAP Business Suite

The SAP Business Suite family of business applications is a comprehensive, integrated suite of business applications that help companies, institutions, and other organizations run their businesses better. These applications can be purchased as an entire suite or individually. Each application is based on the SAP NetWeaver technology platform, an integration and application platform that reduces total cost of ownership across the entire IT landscape and supports the evolution of SAP Business Suite to a services-based architecture.

SAP ERP is an application within the SAP Business Suite. The SAP Business Suite consists of:



- SAP ERP
- SAP Industry Suite
- SAP NetWeaver

All the applications from the SAP Business Suite are powered by SAP NetWeaver.

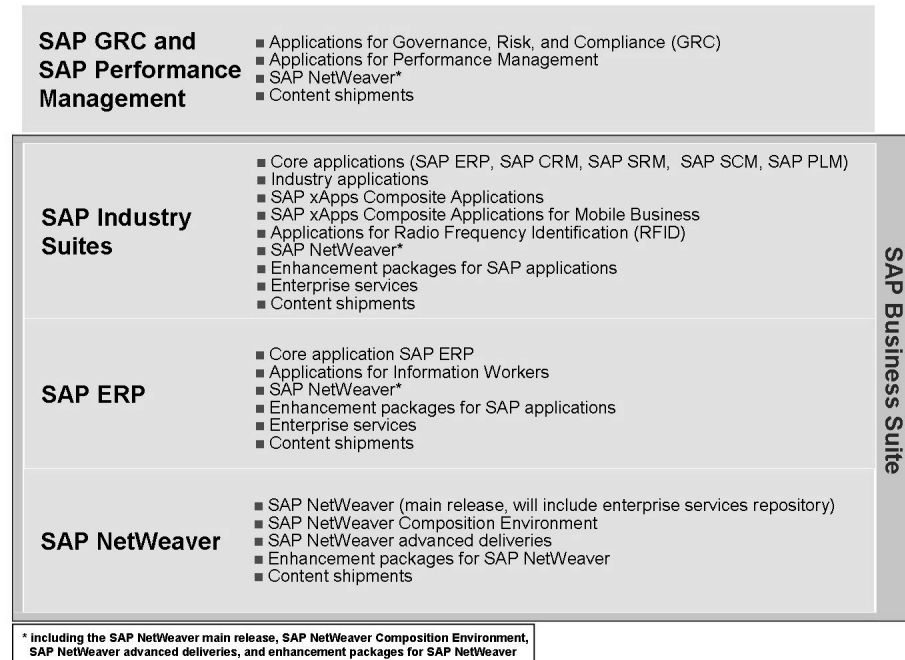


Figure 1: The SAP Business Suite

SAP ERP: Next Generation ERP

SAP's next-generation enterprise resource planning (ERP) solution, SAP ERP, has been designed to meet today's changing demands on ERP. While leveraging existing IT assets, SAP ERP allows companies to regain active control of their entire administrative and operations environment to increase efficiency and profitability. SAP ERP enables new levels business process and technology integration while laying the foundation for incremental evolution of solutions.

In the past, ERP systems were wholly designed with an internal business focus; however, an increasing number of companies begin to transform their business processes to the Web. Therefore, there is a growing requirement for expandable ERP solutions that allow companies to collaborate on these processes with external parties such as customers and suppliers.

Since many years SAP delivers ERP systems. Starting with different releases of SAP R/3 systems, SAP expands the ERP functions and introduces the SAP R/3 Enterprise, the solution mySAP ERP 2004, SAP ERP 6.0 application. Powered by SAP NetWeaver, the open integration and application platform, SAP ERP combines core ERP functionality with portal-based collaboration across the extended enterprise. The SAP ERP application consists of several components. The core component is SAP Enterprise Resource Planning Central Component (SAP ECC).

Versions for controlled availability are listed below.



Basis functionality (SAP Basis/SAP Web AS/ SAP NW AS)	Main business functions (-/Core)	Additional business functions (-/Extension Set)
3.1I	3.1I	-
4.0B	4.0B	-
4.5B	4.5B	-
4.6B	4.6B	-
4.6C	4.6C	-
4.6D	-	-
6.10	-	-
6.20	4.7	1.10
6.30	4.7	2.00
6.40	5.0	5.00
7.00	6.0	6.00

Figure 2: SAP ERP Releases

Several renaming took place in the past; here are a few of them:

1. SAP R/3 was renamed to SAP R/3 Enterprise beginning with 6.20/4.7/1.10
2. SAP R/3 Enterprise was renamed to SAP Enterprise Resource Planning Central Component (SAP ECC) beginning with 6.40/5.0/5.00
3. SAP Basis was renamed to SAP Web Application Server (SAP Web AS) beginning with 6.10
4. SAP Web Application Server was renamed to SAP NetWeaver Application Server beginning with 7.00

No SAP R/3 release exists for SAP Basis/SAP Web AS/SAP NW AS 4.6D, 6.10 and 7.10. Concerning the ABAP part, SAP Web AS 6.30 is the same as SAP Web AS 6.20 (with more Support Packages).

SAP ERP gives companies better control of their assets as well as business processes such as financial supply chain management, e-recruiting and profitability assessments of employees, departments, and customers.



Overview of SAP ERP 6.0 Components

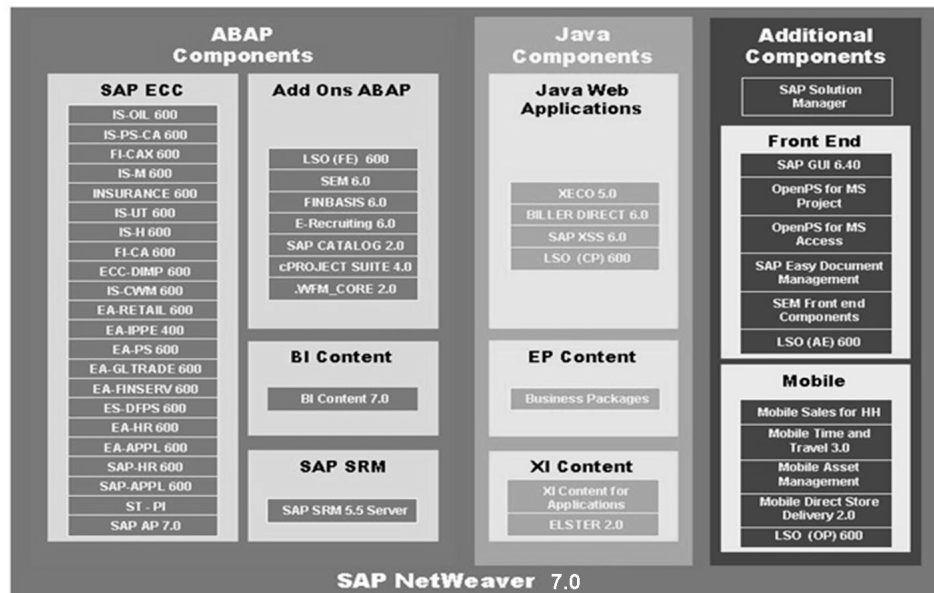


Figure 3: SAP ERP - Components

As you see in the previous figure, the SAP ERP application is powered by SAP NetWeaver.

SAP ERP application consists of:

- SAP ERP Central Component (SAP ECC)
- SAP Enterprise Portal (as part of NetWeaver), especially EP content
- SAP Business Warehouse (as part of NetWeaver), especially BI content 7.0
- SAP Exchange Infrastructure (as part of NetWeaver), especially XI content
- SAP Supplier Relationship Management (SAP SRM)
- Add Ons ABAP:
 - SAP Strategic Enterprise Management
 - SAP E-Recruitment
 - SAP cProject Suite
 - SAP Learning Solution
 - SAP Financial Supply Chain Management
 - ...
- Java Components:
 - Employee Self-Services / Manager Self-Services
 - SAP Internet Sales Web Application Component
 - ...
- SAP Solution Manager
- several front end tools
- several mobile components

From a technical perspective, the latest version of SAP NetWeaver (SAP NW 7.0) was used as the foundation of SAP ERP components.

For more information on the SAP ERP 6.0 components refer to the masterguide.

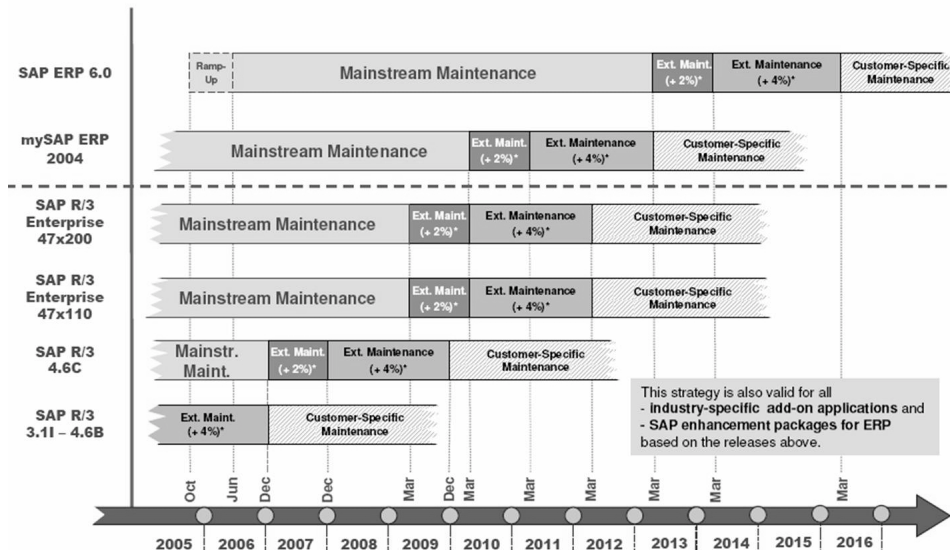


Figure 4: Maintenance Strategy of SAP ERP

With the launch of Enterprise Services Architecture as the blueprint for all SAP solutions going forward, SAP set out to help companies transition toward services-based products and applications on an IT foundation that facilitates business change and growth through innovation.

The following approach provides customers with the necessary flexibility to identify a suitable path forward and plan their transition from SAP R/3 to SAP ERP. The newly defined maintenance time frames above will help meet SAP customers needs for reliable, long-term planning.

SAP has introduced a new 5 - 1 - 2 release and maintenance strategy (see figure above for specific editions) for SAP ERP, as follows:

- Duration of Mainstream Maintenance for a software release is minimum 5 years
- Thereafter, Extended Maintenance is available for 1 more year at an additional fee of 2%
- Thereafter, Extended Maintenance is available for 2 more years at an additional fee of 4% per year
- Thereafter, the software release will enter Customer-Specific Maintenance

SAP uses the following release strategy for the different parts of SAP ERP Central Component:

- SAP ERP Central Component Extensions are delivered in an SAP ERP Central Component Extension Set.

When customers upgrade to a higher release of an extension, they must upgrade the extension set.

- SAP ECC is maintained through support packages, such as APPL support packages and HR support packages.



Lesson Summary

You should now be able to:

- Describe the Application SAP ERP 6.0 and the architecture of its components

Lesson: Technical Overview of SAP ERP

Lesson Overview

This lesson gives a technical overview of SAP ERP.



Lesson Objectives

After completing this lesson, you will be able to:

- Describe the technical architecture of SAP ERP
- Explain the term usage type and list the different usage types
- Reflect the combination of SAP ERP 6.0 and unicode.

Business Example

A petrochemical company, ABC Limited, uses SAP systems to manage its data. The company now plans to install the latest version of SAP ERP, SAP ERP 6.0. The company has to decide which functions will be used. Depending on this decision there has to be done different installation steps. For example the system administrator of ABC need to install SAP ECC or SAP ECC and different Java components. Before installing components of SAP ERP 6.0, you should learn about the features.

The technical architecture

For the installation procedure you have to understand the architecture of an SAP system.

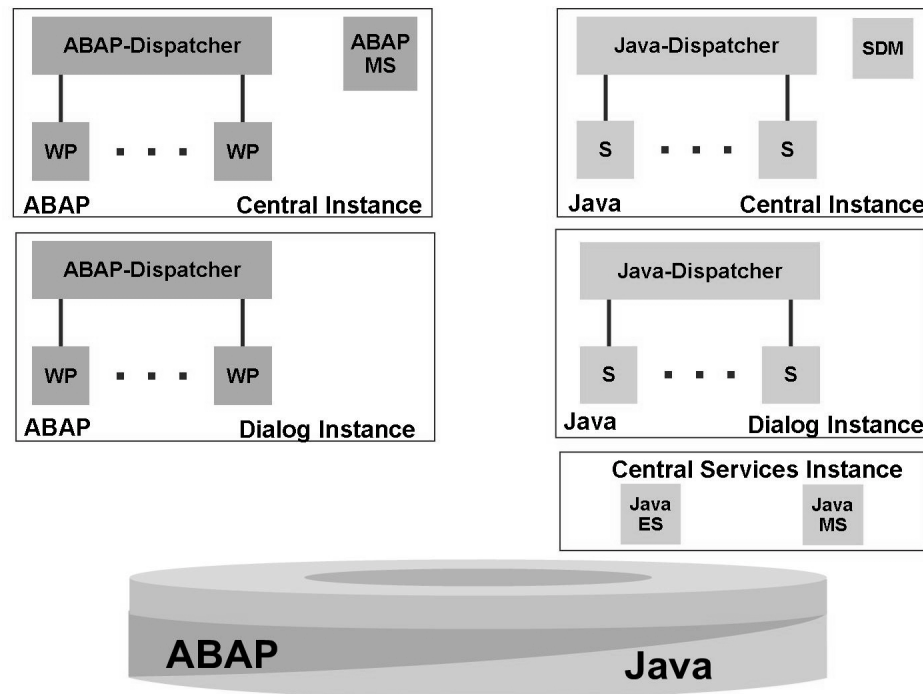


Figure 5: Technical Architecture (extended version)

An SAP system has only one database to store the application data. The database contains one schema or in the extended version two schema (one for ABAP based application data and an other for JAVA based application data).

For ABAP based applications, you need the Central Instance (ABAP-dispatcher, workprocesses and ABAP message server) to complete an SAP system. Dialog instances can be installed to scale the SAP system.

For Java based applications, you need a central instance (JAVA-dispatcher and server processes) and the Central Services Instance (Message Server and Enqueue) to complete an SAP system. Dialog instances can be installed to scale the SAP system.

Connectivity between SAP NetWeaver Application Server Java and SAP NetWeaver AS ABAP is available via SAP Java Connector (JCo).

SAP ERP 6.0 consists of different key functional areas (Analytics, Financials, ...), where ABAP and/or Java based systems have to be installed.

From the technical point of view, SAP ERP 6.0 consists of different layers. SAP differentiate between the application layer and the technical layer.

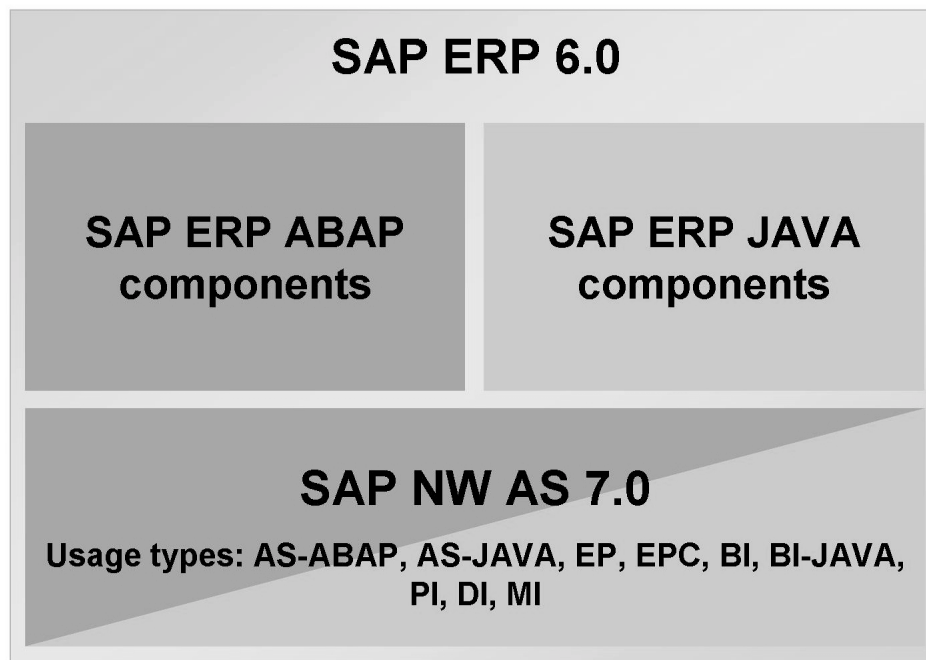


Figure 6: SAP ERP Layers

SAP ERP uses SAP NetWeaver AS 7.0 as the technical foundation. Building on the technical foundation SAP NW AS 7.0, SAP ERP 6.0 offers a wide range of business processes. These business processes are implemented in the application layer (SAP ERP ABAP components or SAP ERP JAVA components).

Depending on the chosen application functions of SAP ERP 6.0, SAP Netweaver AS 7.0 has to be installed as an ABAP-based and/or Java-based system with integrated application (SAP Enterprise Portal, SAP NetWeaver Development Infrastructure, ...). These different installation types named **Usage types**. Please refer to the master guide to get information which usage type has to be installed for a chosen key functional area.

Usage Types

SAP ERP 6.0 is based on SAP NetWeaver 7.0, which in turn consists of usage types.

SAP systems are configured for a certain purpose, as indicated by usage types. The definition of usage types follows: Usage types ...:



- are structuring element for SAP software on a technical level.
- determine the intended purpose of a system.
- are realized by installing and configuring a collection of software components.
- may require other usage types in the same system to operate.

The following lists the usage types for SAP NetWeaver:



- Application Server ABAP (AS ABAP)
- Application Server Java (AS Java)
- Enterprise Portal Core (EPC)
- Enterprise Portal (EP)
- Business Intelligence (BI)
- Business Intelligence Java Components (BI Java)
- Development Infrastructure (DI)
- Mobile Infrastructure (MI)
- Process Integration (PI)

AS ABAP is used to provide the ABAP foundation of SAP NetWeaver. Part of AS ABAP is the Search Engine Service (SES), which enables users to search for business objects using Search and Classification (TREX).

AS Java is used to provide the Java foundation of SAP NetWeaver. It consists of a J2EE 1.3-compliant application server (for running enterprise applications), SAP Composite Application Framework Core (for building and deploying composite applications), user interface technology Web Dynpro (for developing professional business applications for mobile as well as for desktop clients) and adobe document services (to provide a range of form and document creation and manipulation functions).

The core portal usage type (**EPC**) provides flexibility when implementing a portal where the full enterprise portal capabilities, such as knowledge management and collaboration, are not needed.

Usage type **EP** includes all the portal add-on capabilities it previously provided, but without the core portal functionality. Usage type EPC is therefore a prerequisite for usage type EP.

Usage type Business Intelligence **BI** is used to provide the infrastructure for SAP NetWeaver 7.0 scenarios such as Enterprise Data Warehousing, Enterprise Reporting, Query, and Analysis, and Business Planning and Analytical Services.

BI Java is used to provide the Java runtime for IT scenarios such as Enterprise Reporting, Query, and Analysis as well as Business Planning and Analytical Services. It enables variants such as Information Broadcasting and Ad-hoc Query & Analysis. It also enables Web Dynpro-based BI applications and third party data access via Universal Data Integration.

Development Infrastructure (**DI**) of SAP NetWeaver is used to provide the environment for all processes of Java-based development and Java-based software life-cycle management.

Usage Type Mobile Infrastructure **MI** is used to enable field personnel to participate in a business process in an “occasionally connected” mode.

Usage type **PI** (Process Integration) consists of core components that model, design, automate, and integrate processes in one or more application systems. For the integration of internal and cross-company processes, PI is used to incorporate all the functions of what was formerly known as Exchange Infrastructure (XI).

Unicode



What is Unicode?

„Unicode is the encoding standard which provides the basis for processing, storage and interchange of text data in any language in all modern software and information technology protocols.“

See: <http://www.unicode.org>

ما هي التشفرة الموحدة "يونيكود" ؟ in Arabic

什麼是Unicode(統一碼/標準萬國碼)? in Chinese (Traditional)

What is Unicode? in English

რა არის უნიკოდო? in Georgian

Τι είναι το Unicode? in Greek

यूनिकोड क्या है? in Hindi

Cos'è Unicode? in Italian

ユニコードとは何か ? in Japanese

유니코드에 대해? in Korean

Что такое Unicode? in Russian

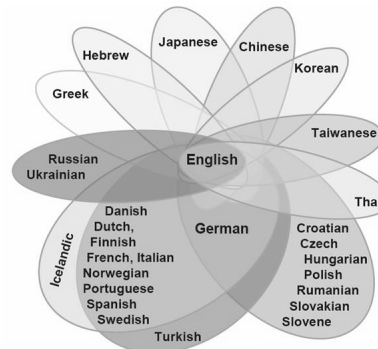
Figure 7: What is Unicode?

Unlike other standard code pages, Unicode defines a character set that includes virtually all characters used worldwide and as a result provides consistent, global character encoding. Unicode is defined by the Unicode consortium (see <http://www.unicode.org> for more information), which consists of leading companies in the world-wide IT industry.



SAP Pre-Unicode Solution:

- single codepages
- MDMP



SAP Unicode Solution:

- Unicode codepage

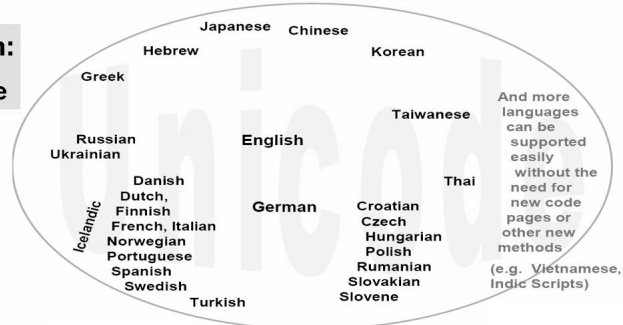


Figure 8: SAP Unicode and Non-Unicode Solution

Up to and including SAP ERP 2004, SAP has provided multiple language support using single code pages as well as multiple code pages in a single installation with MDMP (Multi-Display-Multi_processing), which permits the application server to dynamically switch code pages according to the logon language and language keys (see SAP note 73606). However, even in an MDMP system, an individual user can use only the characters belonging to one code page at a time. To enhance language support for SAP Business Suite, SAP considers Unicode the appropriate development direction and strategy because Unicode offers a single, consistent, and standard

character set encoding for virtually all languages in the world. A code page describes the assignment of one character to one hexadecimal (HEX) value. One (normal: 1 byte) code page represents 256 characters.



- SAP systems support more than 30 different languages.
- Only languages belonging to the same code page are usable without restrictions.
- Up to and including mySAP ERP 2004, SAP supports multiple languages with Multi-Display-Multi-Processing (MDMP) systems.
- **SAP ERP 6.0 no longer support MDMP. SAP recommends to use Unicode as the standard technology to cover multilingual language requirements.**
- Single code page systems (Non-MDMP) are still supported up to and including SAP ERP 6.0.



Hint: SAP strongly recommends Unicode especially in case of new installations. New releases of SAP NetWeaver and SAP applications based on SAP NetWeaver, which are released in 2007 or later, will no longer support new installations of Non-Unicode systems.

With new installations of SAP ERP 6.0 MDMP is not supported. SAP recommends to use Unicode. An upgrade from an existing SAP R/3 MDMP or SAP ERP 2004 MDMP to SAP ERP 6.0 requires a system conversion to Unicode. If you want to operate MDMP productively on SAP ERP 6.0 for a very limited period of time, you can only do this after you sign the relevant "disclaimer" and agree to undertake the project with SAP Consulting. You can find more information at service.sap.com/unicode or in SAP Notes 79991, 540911, 745030 and 73606.

Generally single code page systems (Non-MDMP / Non-blended code pages) are still supported up to and including SAP ERP 6.0 (with restrictions mentioned e.g. in SAP notes 858869 and 838402). However SAP strongly recommends Unicode especially in case of new installations (see SAP note 838402). New releases of SAP NetWeaver and SAP applications based on SAP NetWeaver, which are released in 2007 or later, will no longer support new installations of Non-Unicode systems.

Unicode is the recommended system type for all SAP systems that deploy Unicode-enabled solutions and components.

Unicode is the mandatory system type for:



- SAP systems requiring a combination of languages that are based on more than one non-Unicode code page
- SAP systems that deploy Java applications (for example Java applications, WebDynpro applications)
- SAP ABAP systems that communicate with Java components

For more information about Unicode SAP systems and their availability, see SAP notes 79991, 540911, 745030, 73606 and 379940. Go to SAP Service Marketplace at <http://service.sap.com/unicode>.



Lesson Summary

You should now be able to:

- Describe the technical architecture of SAP ERP
- Explain the term usage type and list the different usage types
- Reflect the combination of SAP ERP 6.0 and unicode.



Unit Summary

You should now be able to:

- Describe the Application SAP ERP 6.0 and the architecture of its components
- Describe the technical architecture of SAP ERP
- Explain the term usage type and list the different usage types
- Reflect the combination of SAP ERP 6.0 and unicode.

Related Information

- SAP NetWeaver
 - SAP Library at <http://help.sap.com>: *Documentation* → *SAP NetWeaver* → *SAP NetWeaver 7.0* → *English* → *SAP NetWeaver Library*
 - SAP Service Marketplace Quick Link <http://service.sap.com/netweaver>
- SAP ERP Central Component: <http://service.sap.com/erp>
- Unicode: <http://service.sap.com/unicode>
- MCODE: <http://service.sap.com/mcod>
- Directory Server:
 - <http://service.sap.com/security> *Security in Detail* → *Identity Management* → *Directory Service Integration*
 - <http://service.sap.com/partnerdirectory>



Test Your Knowledge

1. SAP ERP 6.0 and SAP R/3 4.6C are two completely different solutions/applications, which are shipped by SAP.
Determine whether this statement is true or false.
 - ☐ True
 - ☐ False

2. SAP supports Unicode, Non-unicode and MDMP with SAP ERP 6.0 installations.
Determine whether this statement is true or false.
 - ☐ True
 - ☐ False



Answers

1. SAP ERP 6.0 and SAP R/3 4.6C are two completely different solutions/applications, which are shipped by SAP.

Answer: False

Over years, SAP enhanced SAP R/3 with additional functionality and SAP's next-generation enterprise resource planning solution (SAP ERP 2005) became reality.

2. SAP supports Unicode, Non-unicode and MDMP with SAP ERP 6.0 installations.

Answer: False

With SAP ERP 6.0 MDMP is not supported any longer.

Unit 2

Planning the Installation of SAP ERP Central Component

Unit Overview

This unit explains how to plan for the installation and the technical requirements of SAP ERP Central Component.



Unit Objectives

After completing this unit, you will be able to:

- List the installation requirements for SAP ERP Central Component
- List the technical requirements for SAP ERP Central Component

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Lesson: Planning the Installation

Lesson Overview

This lesson explains the installation requirements, such as hardware sizing and technical requirements, for SAP ERP Central Component. Before starting the installation of an SAP system, you need to answer several questions. Typically this phase starts several weeks (sometimes even months) before the actual installation work takes place.



Lesson Objectives

After completing this lesson, you will be able to:

- List the installation requirements for SAP ERP Central Component
- List the technical requirements for SAP ERP Central Component

Business Example

ABC Limited, a petrochemical company, uses SAP to efficiently manage its data. The company now wants to install the latest version of SAP System SAP ERP Central Component. As the system administrator of ABC, you need to install SAP ERP Central Component. Before installing SAP ERP Central Component, you should plan the hardware sizing requirements and technical requirements, such as network and database requirements, for the installation.

Planning Overview

SAP supports you through the whole software life-cycle. From planning and implementation to operations and maintenance. The SAP Service Marketplace (<http://service.sap.com>) provides access to various tools and services throughout the software life-cycle.

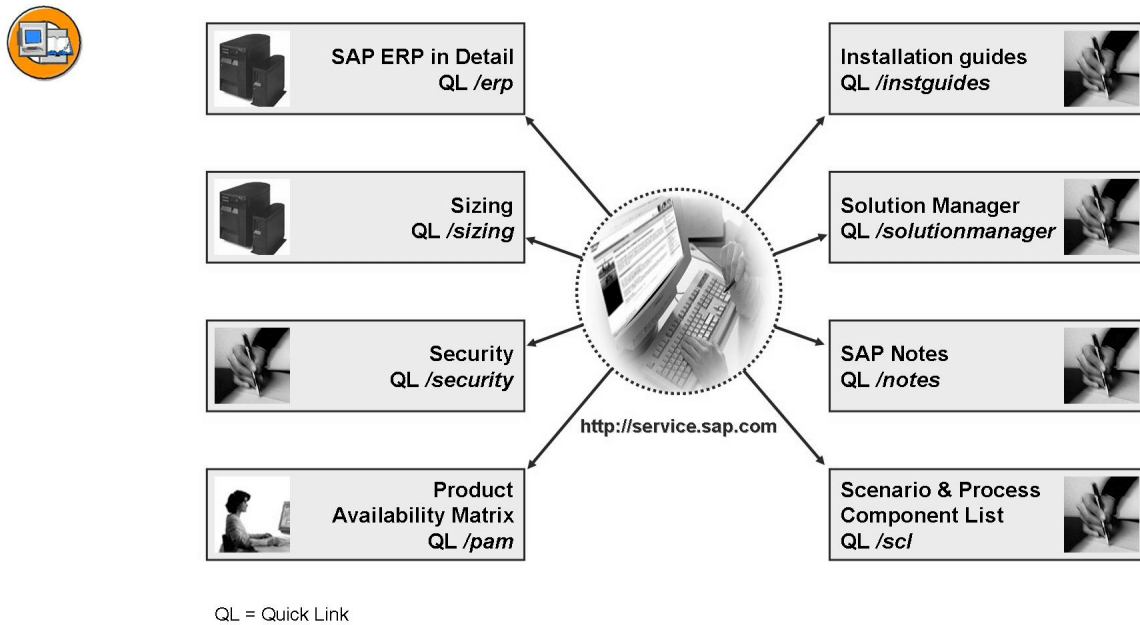


Figure 9: SAP Service Marketplace - Quick Links

Hardware Sizing

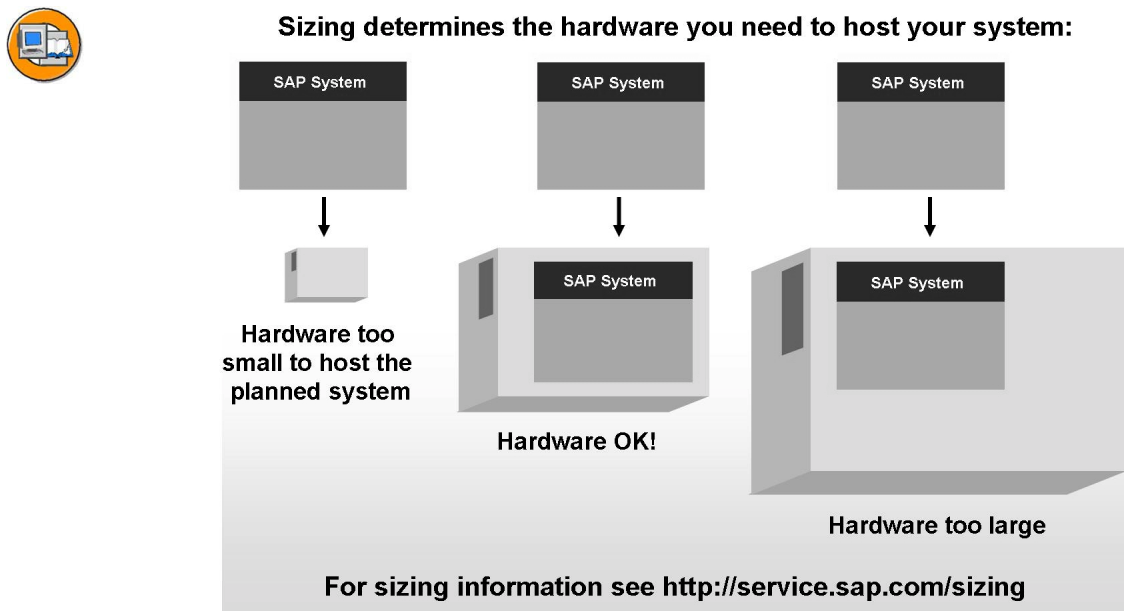


Figure 10: Sizing Your System

Consider the following potential issues:

- Hardware that is sized too small creates additional costs by causing bad performance of the system. High response times lead to inefficient production.
- Adequate hardware prevents performance losses and avoids unnecessary hardware costs.
- Hardware sized too large means you invested too much money to reach your goal of good performance.

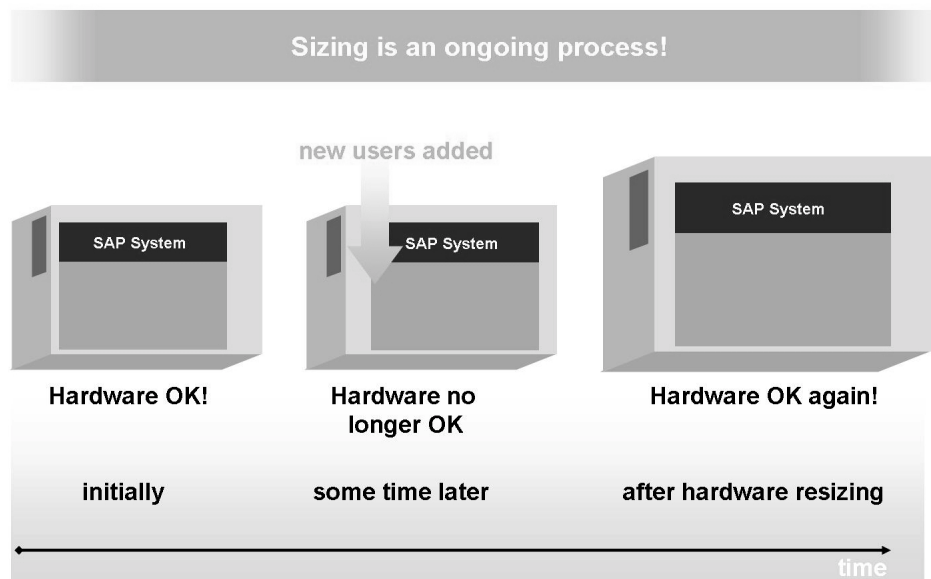


Figure 11: Sizing is an Ongoing Process

Sizing plays a role very early in the planning of your SAP system landscape. It determines the hardware resources needed for your SAP system. The resources needed are influenced by several factors, such as:

- Number of concurrent users in the system and the activity levels of users
- Your company's goals for the average dialog answer time (1.5 seconds OK or 0.6 second required?)
- The amount of high availability (HA) needed; full-blown HA solutions may cost a fortune
- Type of system (SAP ECC, SAP CRM, and so on)
- Functions used in the system, such as SAP ECC: lean (HR and FI) or complex (PP)
- Release of system (SAP R/3 4.6C, SAP R/3 Enterprise, SAP ECC, and so on)
- Type of OS (32-bit, 64-bit OS/Linux, HP-UX, Solaris, AIX, Windows, and so on)
- Type of database used (MaxDB, DB2 UDB, Microsoft SQL Server, Oracle, and so on)
- Type of access to the system (LAN, WAN, SAP GUI type, and so on)
- Preferred backup concept (for example, online backup parallel to productive use requires more hardware)

If one or more of these factors are subject to change, a new sizing or hardware improvement might become necessary.

If you perform an upgrade from 4.6C to SAP ERP Central Component, then you should read:

- The delta requirements 4.6C to R/3 Enterprise
- The delta requirements R/3 Enterprise to SAP ERP Central Component

In general, you can say that a new release will have additional hardware requirements. Always check the documentation and look at the SAP Service Marketplace (<http://service.sap.com/sizing>). From the menu, choose *Sizing Guidelines* → *Solutions & Platform*.

Unicode influences the following factors:

- Load of applications on hardware (CPU & RAM)
 - See <http://service.sap.com/unicode>
 - See <http://service.sap.com/performance>
 - Result: about +30% to +35% CPU and +50% RAM
- Size of database
 - See <http://service.sap.com/unicode>
 - The result depends on the usage of UTF-8 (+10%) or UTF-16 (+30% to 60%).
- Performance of the database
 - Ask the database vendor for the performance results of databases using Unicode.

Unicode systems use between 1 and 5 bytes of space to store single characters, based on the character and its Unicode representation. As a result, in a simple estimate, the resources of the system could be doubled to be prepared for worst-case scenario.

In reality, the load on the CPU caused by the applications, in this case, the SAP software, increased by about 30-35%. The load on the RAM, again caused by application software and not database software, increased by about 50%.

The size of the database of Unicode systems, compared to non-Unicode systems, depends largely on the type of Unicode representation chosen. UTF-16 (+30% to 60%) requires more space than UTF-8 (+10%).

The performance of the database system is also affected. For performance data on the database systems under Unicode, contact your database manufacturer.

Distribution among hardware

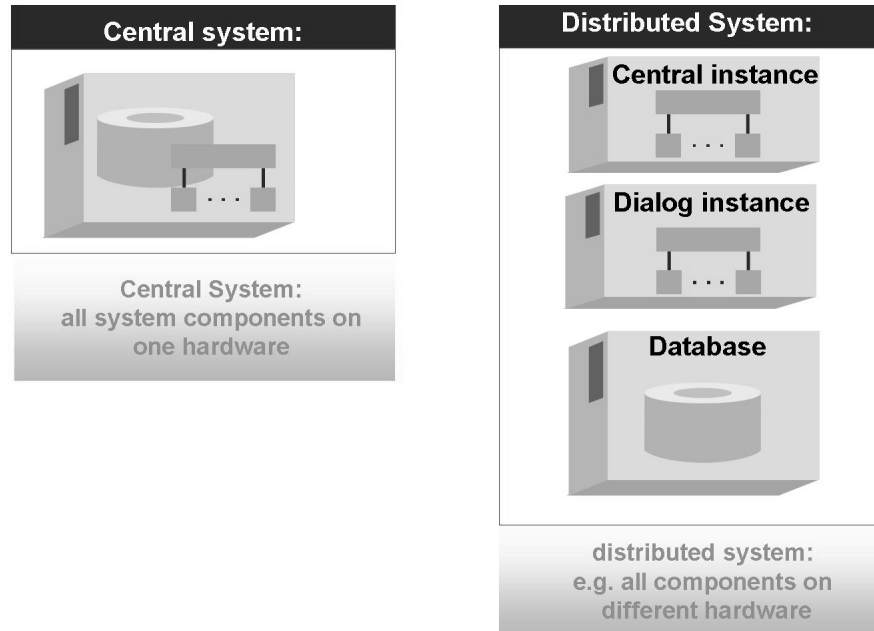


Figure 12: Distribution among hardware

You can distribute SAP software in several ways on the available hardware. The result of the sizing may also influence this decision because the distribution of the software can affect system performance. Some examples and considerations follow:

Central system: All software needed for an SAP system, except the SAP GUI software for end users, is installed on one server. This setup is useful in small companies where one server is able to offer all the hardware resources needed for the system.

Distributed System: In this scenario, software needed for an SAP system is distributed among different hardware/computers. There are many different options possible:

- database and central instance on one hardware, all additional instances on separate hardware
- database, central instance, dialog instances on different hardware
- database on separate hardware, central instance + one dialog instance on separate hardware, all additional dialog instances on separate hardware
- ...

If you decide to install the database on a separate hardware, interferences from the SAP instance on database performance are excluded.

If you decide to install a central system and a need arises for additional SAP system users, an additional dialog instance is a possible solution. A dialog instance may host as many users as their corresponding hardware allows. SAP systems may have many dialog instances. Productive systems with more than 20 dialog instances exist. In addition, it is possible, as shown in this workshop, to install multiple instances on one server.

Gateway instance (not shown): Optionally, a gateway instance can be set up to offer powerful communication performance for SAP systems that exchange data with external systems with a high load.

Usage type dependencies, restrictions and configuration activities

Usage types for SAP NetWeaver 7.0 can be used “standalone” or sometimes have to be combined. Nevertheless there are some restrictions in systems with multiple usage types.

Usage type dependencies

Usage type **AS ABAP** and **AS Java** can be combined optionally with other usage types in one system.

Usage type **EP** requires usage type AS Java as a prerequisite. Optionally, usage type EP can be combined with other usage types in one system. E.g. the SAP NetWeaver 2004s scenarios Enterprise Reporting, Query and Analysis, Business Planning and Analytical Services, and Enterprise Data Warehousing require usage types AS Java, BI and AS ABAP additionally to usage type EP. These usage types can be combined in one system.

Usage type **EPC** is a prerequisite for usage type **EP**.

Usage type **BI** requires usage type AS ABAP as a prerequisite in the same system. Usually, scenarios running on usage type BI also require usage type EP. Optionally, it can be combined with other usage types in one system as well.

Usage type **DI** requires AS Java as a prerequisite in the same system. Optionally, it can be combined with other usage types in one system.

Usage type **MI** requires usage type AS ABAP and AS Java as prerequisites in the same system. Although technically possible, we do not recommend that you combine MI with other usage types (besides usage type AS ABAP and AS Java) in one system at the moment. Instead, we recommend that you install a dedicated MI system.

Usage type **PI** requires usage type AS ABAP and AS Java as prerequisites in the same system. Optionally, it can be combined with other usage types in one system.



Hint: Nevertheless, we recommend that you have a dedicated PI system. For PI, it is a prerequisite that no other system in your system landscape has a higher release than the PI system.

Restrictions for multiple usage types in one system

The installation of SAP NetWeaver usage types BI, PI, EP, MI, and/or DI together with SAP ECC in the same SAP system is technically possible. In this case please pay attention to the following restrictions:



- Usage type MI in the same system with SAP ECC or any other SAP NetWeaver usage type is currently not supported.
- Usage type DI in the same system with SAP ECC or any other SAP NetWeaver usage type is not recommended.
- A common client for SAP BI and SAP ECC is not supported. SAP XI/PI must also be set up in a dedicated client.
- SAP doesn't provide standard tools to separate usage types to multiple systems at a later stage.

In addition, SAP does not provide standard tools to merge multiple systems with different usage types into one system with multiple usage types at a later stage. If you want to perform these tasks, you require specific project support. SAP standard system copy and migration tools do not support you in separating or merging systems with usage types. For more information please refer to SAP Note 855534.

Configuration of systems with usage types

The information about the required configuration activities for systems with usage types are described in the desired installation guide. Additionally for certain usage types, configuration templates exist that can be applied by the Central Technical Configuration – Template Installer (CTC) after the installation. To do this, you start the CTC – Template Installer from the SAP NetWeaver Administrator.

The configuration steps for systems with usage type required for an IT scenario are accessible through the *SAP Solution Manager* or in the *Technology Consultants Guide*.

For information on release restrictions also see SAP Notes 852235 - *Release Restrictions for SAP ERP 6.0* and 852008 - *Release Restrictions for SAP NetWeaver 2004s*

Network Requirements

Technical Requirements

A well-designed technical infrastructure ensures the lowest cost of ownership and improves the system's:



- Performance
- Functionality
- Availability
- Scalability
- Security

Find more information at <http://service.sap.com/instguides> → *SAP NetWeaver* → *<Release>* → *Installation* → *Planning*.

The technical infrastructure describes the technical setup of SAP ERP Central Component. The technical setup includes the network layout, the server layout, the disk layout of the database, the type of computer interface used and many more details.

The technical infrastructure influences the listed technical areas.

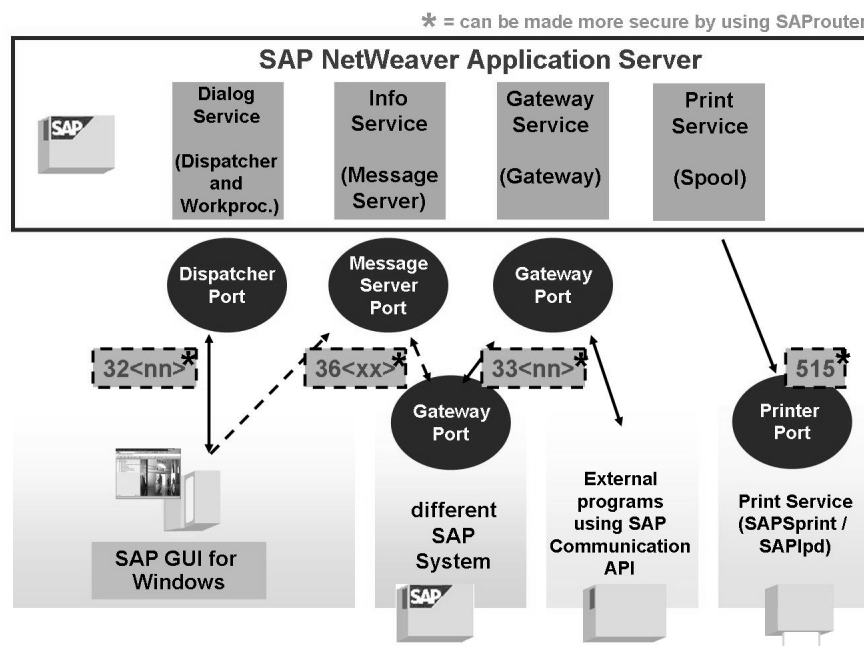


Figure 13: Network: External Ports Used by SAP Systems

As shown in the figure, SAP systems use several different ports for external communication. All these ports should be secured by some means, such as firewalls, routers, and SAProuter, to ensure the SAP system's security. In addition, SAP systems use several internal connections to communicate with the database. The number of connections and the ports used depend on the type of database employed.

The figure shows only the SAP NetWeaver Application Server ABAP ports . For the SAP NetWeaver Application Server Java, the port 50000 and higher are used. For more information about used ports in SAP environment, go to <http://service.sap.com/security> *Security in Detail* → *Infrastructure Security* → *TCP/IP Ports Used by SAP Applications*.

For more information about Infrastructure Security, go to <http://service.sap.com/security> *Security in Detail* → *Infrastructure Security* .

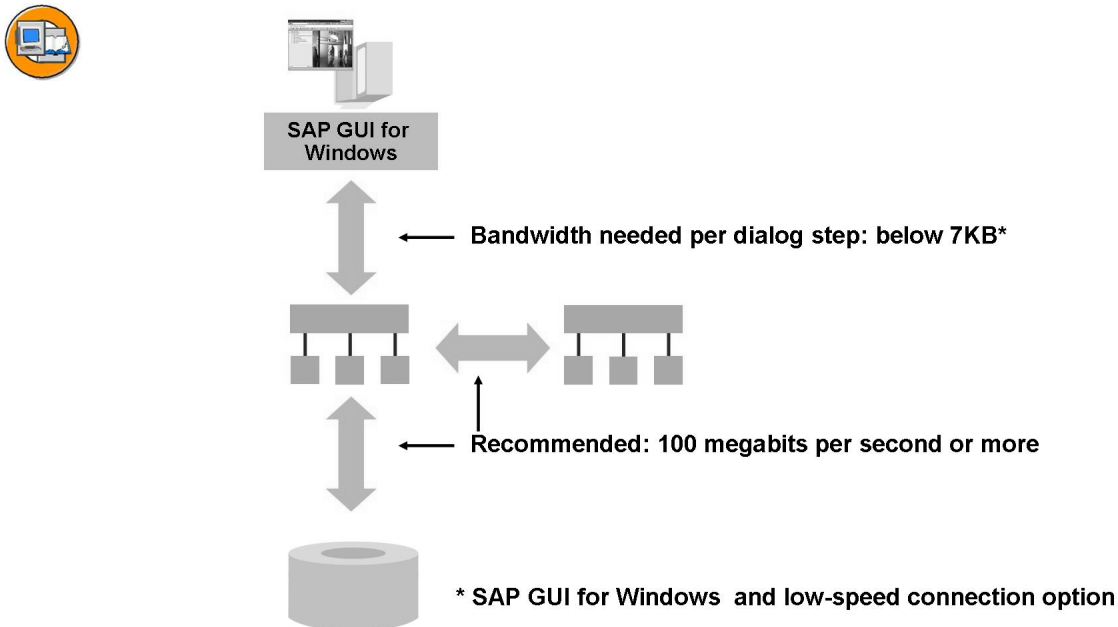


Figure 14: Network: Load Caused by SAP Communications

The bandwidth needed between the computer interface and the application layer depends on the following parameters:

- Type of GUI used (BEx for SAP BW, SAP GUI for HTML, SAP GUI for Windows, and so on)
- Type of application (within SAP ECC: FI, HR, SD, and so on)
- Type of product used (SAP CRM, and so on)
- Low-speed connection flag used (SAP note 161053)
- Other applications on the front-end (office products) using the same connection

For more information, go to <http://service.sap.com/sizing>. From the menu, choose *Sizing Guidelines* → *Solutions & Platform*. From here, you can download the document, *Frontend Network Requirements for SAP Solutions*.

The load between the application layer and the database layer is considerable. As a result, SAP recommends offering a bandwidth of at least 100 megabits per second for this communication. It is usually not possible to separate the database by more than the LAN width from the application layer.

For more information on network layout for SAP servers, read SAP note 21151 and display or download the document, *Network Integration of SAP Servers*.



resides on RAID array
of several physical disks



For recommendations of disk layout, see next page

Figure 15: Database: Disk Layout and High Availability

Database Requirements

Databases of SAP systems hold different types of data:



- Business data (master data, transaction data, and so on) and corresponding index data
- Logging data for the database (needed for recovery)
- Configuration data for the database

Databases of SAP systems are usually stored on disks combined with some RAID level (usually 1 or 5). Databases used for SAP systems can hold up to several terabytes of business data. Because practically you are unable to restore a large database, you have to ensure that data loss is avoided under almost all circumstances. The disk layout for databases used for SAP systems affects not only system performance, but also reliability and availability.

To ensure the maximum availability of your system, you have to take several scenario into account:

- Disk failure
- RAID controller failure
- Network card failure
- Network failure
- Power supply failure
- Massive environmental damages (fire, flood, earthquake, and so on)

For more information on the these issues, go to <http://service.sap.com/ha>.



Separate the following database data physically, as shown:

■ Business data and index data



RAID 5

■ Current logging data



RAID 1

■ Database configuration data



RAID 1

Figure 16: Recommendations about the Database Disk Layout

Using the configuration shown in the figure, you achieve an optimum of the factors hardware costs, availability, and performance. If costs are not a factor, higher-performing configurations are possible. For these options, see <http://service.sap.com/ha> and contact your hardware, operating system, and/or database vendor.

You should not store the historical log files of your database on any of the arrays listed in the figure; instead, you should save the historical log files to tape or any other suitable location **twice** before deleting them. Historical log files are referred to as Offline Redo Log Files by Oracle.

Rules concerning the SAP system ID (<SID>):



- The SAP system ID (<SAPSID> or SID) and database system ID (<DBSID>) must be unique.
- The system ID must consist of three alphanumeric characters. Only uppercase letters are allowed. The first character must be a letter, subsequent characters may be digits.



Hint: If you use Oracle as a database management system, you should be aware that you can choose the ID of the database schema as well. Please refer to SAP notes 355771 (Oracle: Explanation of the new tablespace layout) and 617444 (Separate SCHEMA ID for database schema and tablespace name).

Database management systems can host multiple databases (exception: when MCODE is used).



Note: The set of reserved names may differ between different database and operating system combinations.



Database Users for SAP Systems; more than one might be needed

Max DB	SAP<SID>	control, also SUPERDBA
Oracle	SAP<SID>	SYSTEM and SYS
MS SQL Server	<sid>adm	SAPService<SID>
DB2 UDB	SAP<SID>	db2<dbSID>
DB2 zOS	<sid>adm	also see installation guide
DB2 iSeries	<sid>OFR	



Caution: Read the installation guide and related notes carefully. There are critical differences in naming conventions. For example, for Microsoft SQL Server, the user <sid>adm must be named using lower-case characters <sid>, such as tstadm, while the user SAPService<SID> must be named using upper-case characters <SID>, such as SAPServiceTST.

When higher security settings are used on iSeries computers, password entries become case sensitive. SAP note 495433 explains that the default password, using higher security settings, must be entered as **SAPOFR**.

SAP Solution Manager

The SAP Solution Manager supports you throughout the entire life-cycle of your solutions, from the Business Blueprint to the configuration to production processing. It provides central access to tools, methods and preconfigured contents which you can use during evaluation, implementation and operational processing of your systems.

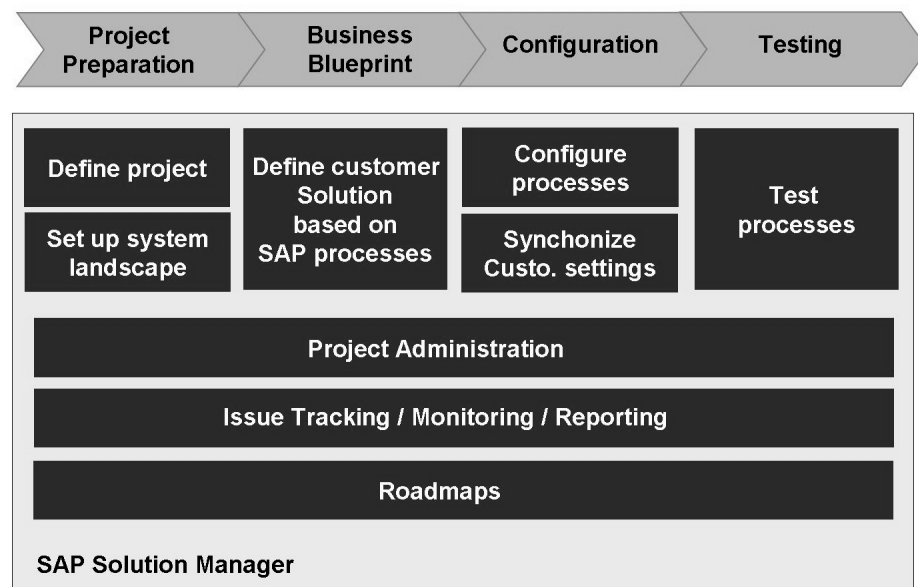


Figure 17: SAP Solution Manager

The SAP Solution Manager provides central access to all tools, methods, documents and other data required in the implementation environment. You can use implementation contents, delivered with the SAP Solution Manager and regularly updated, and adjust it to your requirements.

Make sure you have access to a SAP Solution Manager system, so that you can generate a key for the installation of the new SAP system.

Production Client Considerations

A client is a self-contained business unit in an SAP system with separate master records. SAPinst creates three ABAP clients during the installation, client 000, client 001, and client 066. As of SAP NetWeaver 7.0 and Business Suite 2005, you can

install an ABAP+Java system in one installation run. This means that AS Java is configured by default against ABAP client 001. You can choose one of the following methods to set up your new production client:



- You install the ABAP and the Java part of your system separately.
- You install an ABAP+Java system and reconnect the Java part.
- You install an ABAP+Java system and do not reconnect the Java part.

The following procedure describes the above methods.

Install ABAP and Java parts separately

You install the ABAP system as described in the documentation. Afterwards you perform a client copy to create your new production client. Now you install the Java Add-In to your existing ABAP system. You can specify the production client to which you want to connect the Java Add-In during the input phase of the installation.

Install ABAP+Java System and Reconnect Java

If you need the Java users in your ABAP production client, you have to manually configure the connection of the Java part to the ABAP part. First you install the ABAP+Java system. Afterwards you perform a client copy to create your new production client. Finally you reconnect the Java part to the production client as described in SAP Note 937323.

Install ABAP+Java System Without Reconnecting Java

If you do **not** need the Java users in your ABAP production client, you do not have to manually configure the connection of the Java part to the ABAP part. You just install the ABAP+Java system. Afterwards you perform a client copy to create your new production client.

System Landscape Directory (SLD)

The System Landscape Directory of SAP NetWeaver (SLD) serves as a central information repository for your system landscape. A system landscape consists of a number of hardware and software components that depend on each other with regard to installation, software updates, and demands on interfaces.

The SLD stores information about all installable and installed components of a system landscape. SAP provides information about installable SAP software, dependencies and recommended scenarios and regularly publishes updates on SAP Service Marketplace. SAP software components that are installed on technical systems are registered automatically and on a regular basis in the SLD. Thus the SLD always contains up-to-date information about the installed system landscape.

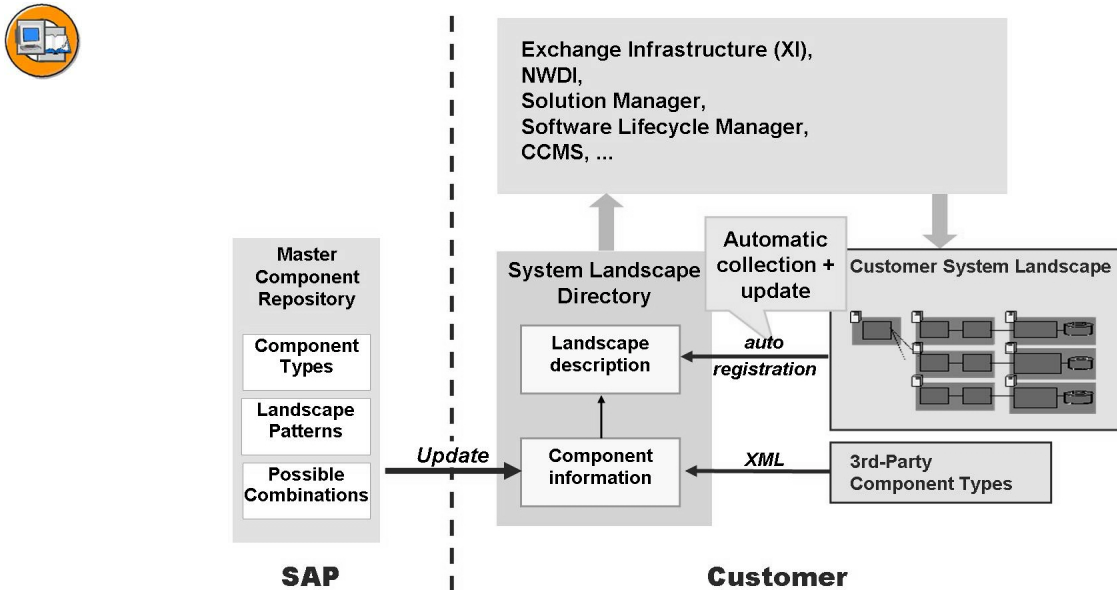


Figure 18: System Landscape Directory

During installation you have three possibilities concerning SLD usage:

- Register in existing central SLD (default)
- Configure a local SLD
- No SLD destination

The recommendation is to choose *Register in existing central SLD (default)*. The usual cases is to configure one SLD for the complete landscape.

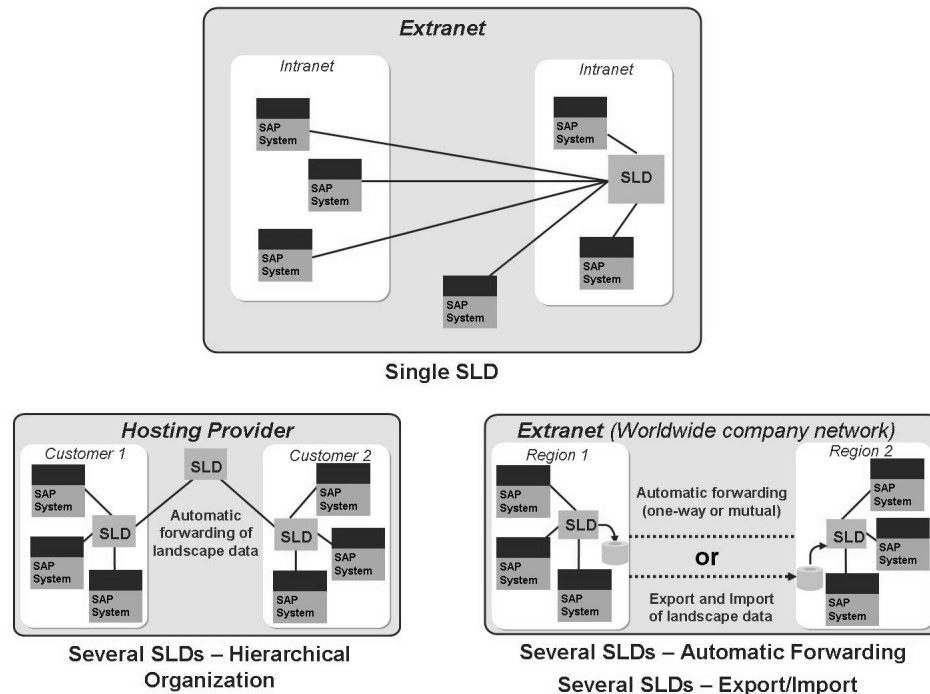


Figure 19: How many SLD do you need?

For the System Landscape Directory, different topology options are available (depending on your requirements), all with different pros and cons. There is no general recommendation that fits all use cases. The most straightforward scenario is the use of a single SLD. However, depending on organizational, operational, or security reasons, it is also possible to have more than one SLD distributed over the system landscape. Automatic message forwarding, as well as sophisticated data export and import functions, are provided to support the operation of multiple SLDs.

The easiest scenario is the central SLD. All data is collected and maintained in a single SLD. All requests are routed to this single SLD, which contains information about the whole system landscape. All clients must be enabled to access the central SLD. The illustration in the lower-left section shows a hosting scenario with several separate customer system landscapes. Each customer landscape incorporates its own SLD containing this customer's landscape only. Global or widely distributed IT landscapes may require more than a central SLD. It is then expected that an SLD is locally available but that it provides more than a local view. This can be achieved by coupling multiple distributed SLDs. The following kinds of coupling between SLDs are possible: "Automatic forwarding of landscape data" or "Export and import of landscape data."

For more information, see the Planning Guide – SLD (available in SAP Service Marketplace at <http://service.sap.com/sld>).

Exercise 1: Planning the Installation

Exercise Objectives

After completing this exercise, you will be able to:

- Choose parameters for the installation.

Business Example

ABC Limited, a petrochemical company, uses SAP to efficiently manage its data. The company now wants to install the latest version of SAP System SAP ERP Central Component. As the system administrator of ABC, you need to install SAP ERP Central Component. Before installing SAP ERP Central Component, you should plan the hardware sizing requirements and technical requirements, such as network and database requirements, for the installation.

Task: Choose Parameters

Choose the relevant parameters for the installation.

1. Use the table below to enter parameters to be used later on for the installation.

Parameter	Example	Your Value
SAP System ID	SFT	
DB System ID	SFT	
Central Instance Number	00	
Central Instance Hostname	twdf1234	
ABAP Message Server Port (external)	3600	
Java Central Services Instance Number	01	
Java Message Server Port (internal)	3601	
Master Password	RY41\$h1X7	

Solution 1: Planning the Installation

Task: Choose Parameters

Choose the relevant parameters for the installation.

1. Use the table below to enter parameters to be used later on for the installation.

Parameter	Example	Your Value
SAP System ID	SFT	
DB System ID	SFT	
Central Instance Number	00	
Central Instance Hostname	twdf1234	
ABAP Message Server Port (external)	3600	
Java Central Services Instance Number	01	
Java Message Server Port (internal)	3601	
Master Password	RY41\$hlX7	

- a) Fill out the table above.



Lesson Summary

You should now be able to:

- List the installation requirements for SAP ERP Central Component
- List the technical requirements for SAP ERP Central Component



Unit Summary

You should now be able to:

- List the installation requirements for SAP ERP Central Component
- List the technical requirements for SAP ERP Central Component

Related Information

- SAP Service Marketplace <http://service.sap.com>:
Quick Links: /sizing, /performance, /ha, /unicode, /platforms, /pam, /instguides, /osdbmigration, /security, /sld
- SAP notes as listed in this unit



Test Your Knowledge

1. An SAP ERP Central Component system does not require more hardware resources than SAP R/3 4.6C.

Determine whether this statement is true or false.

- ☐ True
- ☐ False

2. SAP ERP Central Component is build on SAP Basis Technology.

Determine whether this statement is true or false.

- ☐ True
- ☐ False



Answers

1. An SAP ERP Central Component system does not require more hardware resources than SAP R/3 4.6C.

Answer: False

Apart from the additional resources required for Unicode, an SAP ERP Central Component system in general does require more hardware resources than SAP R/3 4.6C.

2. SAP ERP Central Component is build on SAP Basis Technology.

Answer: False

SAP ERP Central Component is build on the SAP NetWeaver technology.

Unit 3

Preparing for the Installation of SAP ERP Central Component

Unit Overview

This unit discusses the necessary preparations for the installation of SAP ERP Central Component and other SAP systems.



Caution: If your instructor plans to let you do the full Support Package Stack 15-patch in unit 8 “SAP Patch Day” **then it is absolutely necessary that you install your own SAP Solution Manager** on the training server provided for you.



Unit Objectives

After completing this unit, you will be able to:

- Perform the general preparation steps needed to install SAP ERP Central Component
- Perform the necessary preparation steps to install SAP ERP Central Component on Windows
- Perform the necessary preparation steps to install SAP ERP Central Component on UNIX
- describe how to install SAP Solution Manager

Unit Contents

Lesson: General Preparation for Installation	50
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Lesson: General Preparation for Installation

Lesson Overview

This lesson explains the general preparation steps needed to install SAP ERP Central Component and other SAP systems.



Lesson Objectives

After completing this lesson, you will be able to:

- Perform the general preparation steps needed to install SAP ERP Central Component

Business Example

ABC Limited, a petrochemical company, uses SAP to manage its data. The company now wants to install the latest version of the SAP, SAP ERP Central Component (SAP ECC), to use the functions delivered with the extension sets of SAP ERP Central Component. As the system administrator of ABC, you need to install SAP ERP Central Component. Before installing SAP ERP Central Component, you should perform some general preparation steps.

Steps for preparing the SAP ERP Central Component installation

The following steps need to be performed as preparation for the SAP ERP Central Component (SAP ECC) installation.

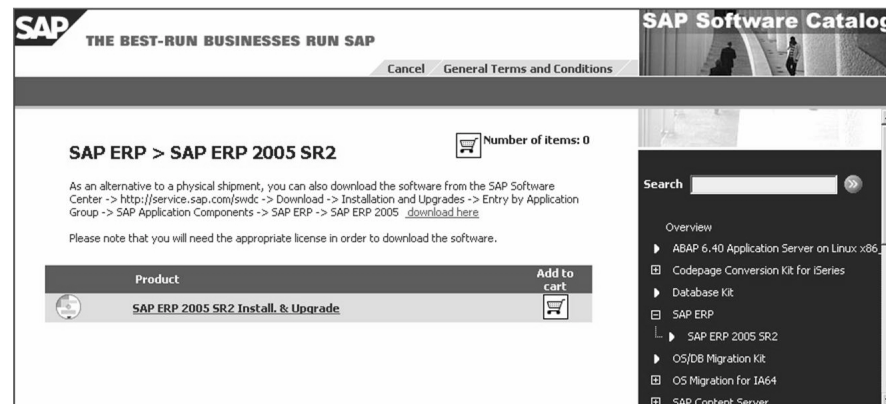
General Installation Preparation Steps



- Order or download the installation DVDs.
- Prepare the installation DVDs.
- Download the SAP ECC installation guide.
- Download all the required SAP notes as listed in the installation guide.
- Install/Update SAP Frontend components like SAP GUI for Windows
- Install Java Runtime Environment for SAPinst
- Set environment variable for SAPinst
- Install Java Development Kit for SAP NetWeaver AS Java (depending on usage types and operation system)
- Set environment variable for SAP NetWeaver AS Java
- Download Java Cryptography Extension (JCE) Unlimited Strength Jurisdiction Policy Files for AS Java based systems).
- Check if the necessary hardware and software requirements are fulfilled (Prerequisites Check)
- Generate a SAP Solution Manager key



<http://service.sap.com/swcat>



Or download DVDs at
<http://service.sap.com/installations>

Figure 20: Order the Installation DVDs

Download and Read Guides and Notes



<http://service.sap.com/instguides>

mySAP ERP 2005
Installation Information
In this section, you can find comprehensive information on how to install mySAP ERP 2005 software.

Related Topics

- General Installation And Upgrade Documentation
 - SAP NetWeaver 2004s Installation
 - Installation and Upgrade Information for SAP Industry Solutions
 - Scenario & Process Component (SCL)

Master Guide - mySAP ERP 2005
The Master Guide - mySAP ERP 2005 provides important information about the installation sequence and the components to be installed. It links to all other documents that are required for the implementation of a specific scenario.
Download the latest version of the document [here](#).
For more information how to install components e.g. SRM 6.0 see the folder [SAP notes](#).
The [Scenario & Process Component List](#) helps you to find realization alternatives for SAP solutions, business scenarios and processes. It shows you which application components are needed to realize a business scenario or process.
Mass shipment release: Support Release 1 (SR1)
SR1 is our mass shipment release. Customers starting with SR1 are recommended to additionally install **Support Packages Stack 4**. For more information, see [SAP Note 938033](#).
SR2 is available.

To sort, click on the appropriate column header. You can sort in ascending or descending order by clicking on the orange arrow.
To download a document, right-click the icon and choose "Save target as ..."

File Type	Title	Lang.	Changed	Size (KB)
	Installation Documentation - SAP ERP 2005	E	13.06.2006	
	Installation, SAP R/3 Direct	D	22.12.2005	214
	Installation, SAP R/3 Direct	E	22.12.2005	207
	SAP E-Commerce 5.0 - Development and Extension Guide	E	13.03.2007	4243
	SAP E-Commerce 5.0 - Examples and Tutorials (Dev, J2EE)	E	15.12.2006	2751
	SAP E-Commerce 5.0 for mySAP ERP - Bus. Scen. Config. Guide	E	15.12.2006	1264
	SAP E-Commerce 5.0 for mySAP ERP - JPS Configuration Guide	E	15.12.2006	202
	SAP ERP 2005 SR1 - Installation Guides	E	05.12.2006	13
	SAP ERP 2005 SR2 - Installation Guides	E	04.12.2006	13
	SAP Learning Solution Authoring Environment 6.0 Installation	D	16.05.2006	1709
	SAP Learning Solution Content Player 6.0 Post-Installation S	E	16.05.2006	240
	SAP Learning Solution Content Player 6.0 Installation and Up	D	17.05.2006	1576
	System Copy for SAP Systems Based on NW2004s	E	11.10.2006	606
	System Copy for SAP Systems Based on NW2004s SR1 ABAP	E	15.08.2006	2177
	System Copy for SAP Systems Based on NW2004s SR1 ABAP+ Java	E	05.09.2006	2736
	System Copy for SAP Systems Based on NW2004s SR1 Java	E	05.09.2006	2346
	System Copy for SAP Systems Based on NW2004s SR2 ABAP	E	15.01.2007	3680
	System Copy for SAP Systems Based on NW2004s SR2 ABAP+ Java	E	15.01.2007	4711
	System Copy for SAP Systems Based on NW2004s SR2 Java	E	14.12.2006	2674
	mySAP ERP 2005 SR2 Master Guide	E	13.12.2006	2795

Figure 21: Download the Installation Guides

For each installation, you should download the current installation guide for your specific combination of operating system and database system from SAP Service Marketplace (<http://service.sap.com/instguides>).

You should print the installation guide and read it carefully before starting the installation process. Have the installation guide ready during the installation to follow each successive step of the installation procedure.

Download relevant SAP Notes

Download and print the current version of all the relevant SAP Notes. These SAP Notes contain additional information that is required when performing a SAP ECC installation. The SAP Notes can be found on the SAP Service Marketplace (<http://service.sap.com/notes>).



- 1013084 - CD/DVD for SAP ERP 2005 Support Release 2
- 1001555 - CD/DVD for SAP NetWeaver 2004s Support Release 2

- 967123 - SAP NetWeaver 2004s/Business Suite 2005 SR2: Windows
- 967121 - SAP NetWeaver 2004s/Business Suite 2005 SR2: Ora Windows
- 966960 - SAP NetWeaver 2004s/Business Suite 2005 SR2: SQL Server
- 967742 - SAP NW 2004s SR2 & SAP BS 2005 SR2 Inst. on Windows: MaxDB
- 967558 - DB6: NW 2004s SR2/Business Suite 2005 SR2 - Windows

- 972262 - Inst: NW 2004s SR2/Business Suite 2005 SR2 - UNIX
- 972263 - Inst: NW 2004s SR2/Business Suite 2005 SR2 - UNIX/Oracle
- 967741 - SAP NW 2004s SR2 & SAP BS 2005 SR2 Inst. on UNIX: MaxDB
- 967560 - DB6: NW 2004s SR2/Business Suite 2005 SR2 - UNIX

- 171356 - SAP software on Linux: Essential information

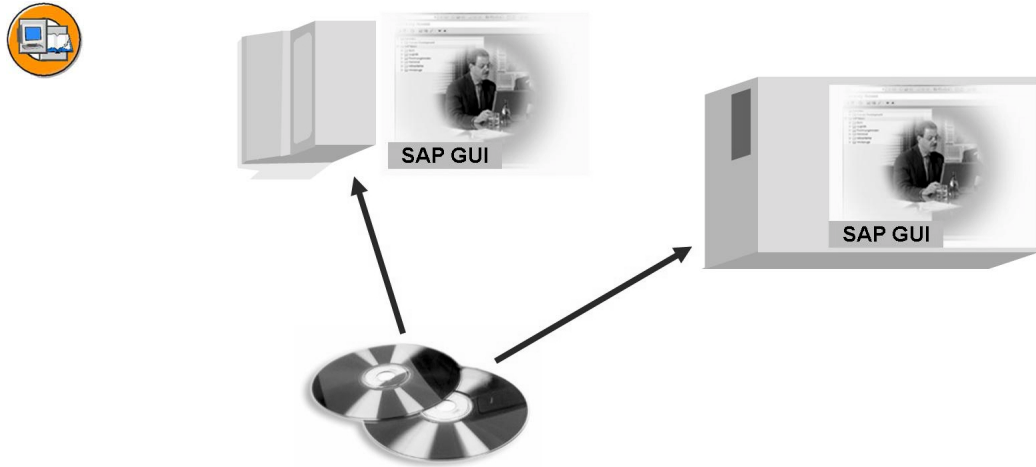
- 855897 - SAP Business Suite 2005 Installation: IBM eServer iSeries
- 978127 - SAP NetWeaver 2004s SR2 Installation: IBM eServer iSeries
- 858969 - SAP NetWeaver 2004s Installation: IBM DB2 UDB for z/OS

Download only the SAP notes relevant for your specific installation. For example, if you install an SAP ERP Central Component system on Linux and MaxDB, you should download SAP note 96774. You should also download the SAP notes mentioned in your installation guides.

To avoid known problems print the relevant SAP Notes and read them carefully **before** beginning an installation.

Have all the relevant SAP Notes at hand during the installation so that you can quickly solve potential problems that might occur.

Install SAP Front-End Software



- **SAP GUI on at least one host machine
(host of central instance)**

Figure 22: Install SAP Front-End Software

Ensure that the front-end software is installed on at least one host computer in your system environment. To simplify the administration of your SAP system, it is recommended that you do this on the central instance host.

For more information on installing the front-end software, refer to the Installing SAP GUI unit of this class and the separate documentation:

- SAP Front-End Installation Guide (English version)
- SAP Frontend-Installationsleitfaden (German version)

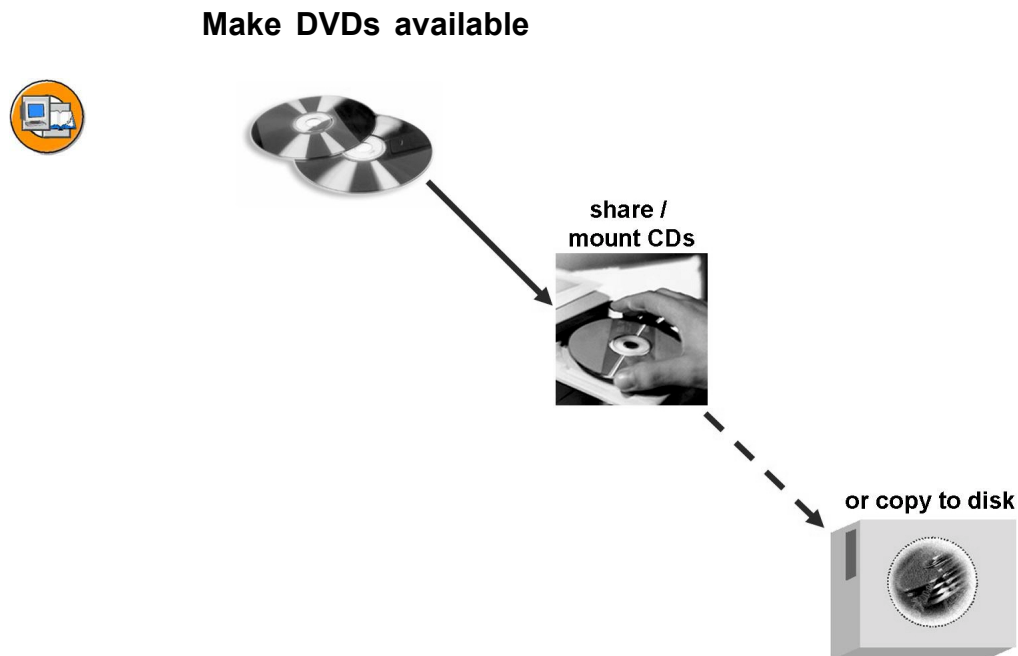


Figure 23: Prepare Installation DVDs

The master guide lists the DVDs you need for the installation in the *Media Information* section. The installation guide lists the DVDs you need for the installation in the *Preparation* chapter.

SAP recommends making all required DVDs available in parallel. The EXPORT and the RDBMS DVDs must be available in parallel.

Ensure that you have sufficient DVD drives available or copy the DVDs to a hard disk.



Caution: If you not have sufficient DVD drives available you must copy at least the installation master DVD to the local file system.



If you copy the installation DVDs to disk, make sure that the paths to the location of the copied DVDs do not contain any blanks.

You can copy an entire DVD during the installation using the SAPinst dialog CD Browser. SAPinst copies the DVD to the path you entered in the *Copy Package to* column.

JRE/JDK Installation

SAPinst is a Java based tool and thus needs a Java Runtime Environment (JRE) to be installed. If you will later on install Java based SAP software on the same host, make sure to install the right version, if possible. For example SAP NetWeaver AS Java 7.0 needs the full J2SE SDK (Java 2 Standard Edition Software Development Kit), also called JDK (Java Development Kit). In this JDK also the JRE is contained, which also works for SAPinst. Always check the Product Availability Matrix on SAP Service Marketplace (<http://service.sap.com/pam> for the supported version of the JDK. In addition following SAP note 723909 - *Java VM settings for J2EE 6.40/7.0* provides helpful information.

The steps are described in detail in the following figures on the example of Windows 2003 Server x64 Edition.

-  **Note:** For UNIX operating systems it is also mandatory to install the JRE and or JDK. The details on those installations are not included here.
-  **Note:** If you are installing your SAP system on an Oracle database, be aware that the Oracle installer also installs an JRE on the database host. The location of this JRE is added automatically to the PATH environment variable.

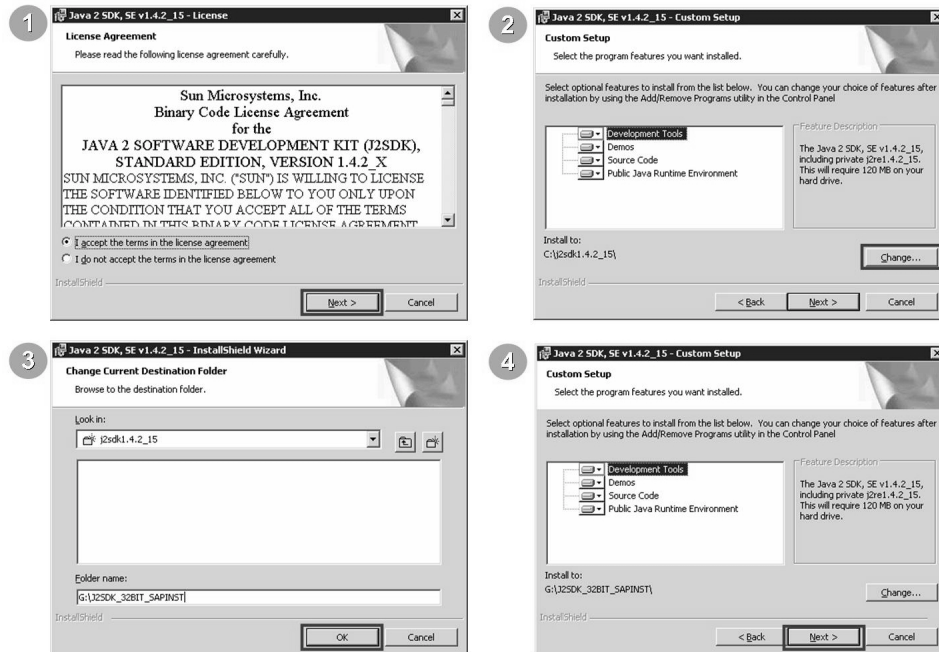


Figure 24: Windows: JDK Installation (1/2)



Hint: When you specify the Java installation directory, make sure that:

- There are no spaces in the directory path
- The directory only contains the version number and NOT the build number

This is recommended because many non SAP tools use the path to the Java installation directory in start scripts. If you upgrade from e.g. j2sdk1.4.2_15 to j2sdk1.4.2_17 the directory name changes, but the scripts don't get changed.

Because SAPinst GUI is a Java-based tool, the Java Runtime Environment must be installed.

If you are not certain that the JRE is installed already, you can check under *Start* → *Settings* → *Control Panel* → *Add/Remove Programs*. The software is present if there is an entry for “Java 2 SDK Standard Edition...”

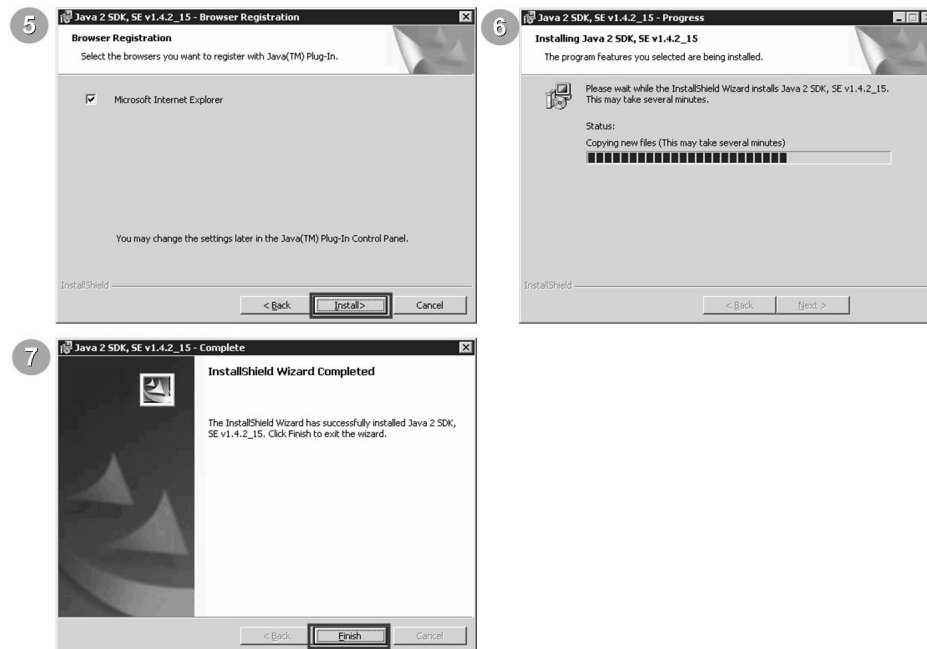


Figure 25: Windows: JDK Installation (2/2)



Hint: Deactivate the automatic update feature of the Java installation. Otherwise you may upgrade your JDK unwillingly to a nonsupported version.

After installation of the JDK you have to set an environment variable so that SAPinst and SAP NetWeaver AS Java can locate the installed JRE/JDK.

In case you need to install more than one JDK version, you can set different environment variables for SAPinst and SAP NetWeaver AS Java. SAPinst checks environment variable `SAPINST_JRE_HOME` for a valid Java runtime environment. If `SAPINST_JRE_HOME` is not found, SAPinst also checks `JAVA_HOME`. As SAP NetWeaver AS Java also needs the `JAVA_HOME` environment variable to be set, you can simply add the `JAVA_HOME` variable if SAPinst and SAP NetWeaver AS Java need the same JDK version.

Setting the environment variable in Windows

To set the `JAVA_HOME` environment variable in Windows, choose *Start* → *Settings* → *Control Panel* → *System* and switch to the *Advanced* tab. Select *Environment Variables*.

Make sure the `JAVA_HOME` system variable is set to the Java home directory, which is the directory in which JDK is installed. If it is not set, create a new variable.

The procedure to create a new variable is:

- Below section *System variables* choose *New*.
- Set *Variable name* to **JAVA_HOME**.
- Set *Variable value* to the Java home directory, for example **G:\J2SDK**
- Choose *OK*.
- The *JAVA_HOME* variable is now present in the system variables list.

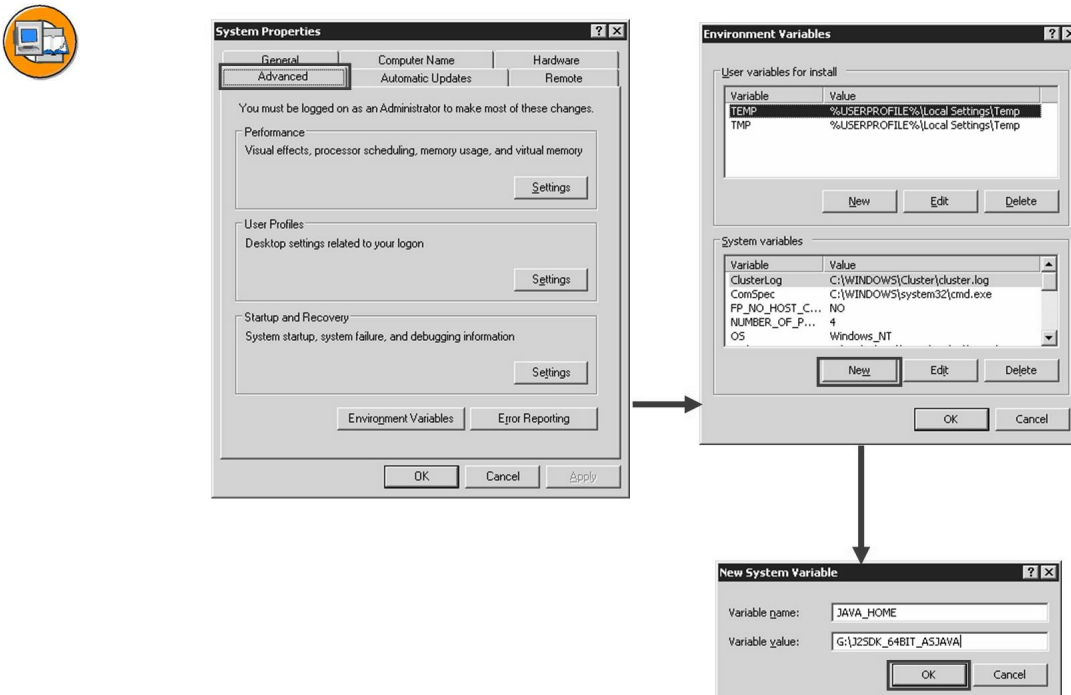


Figure 26: Windows: Environment Variable JAVA_HOME

If necessary repeat the steps above for the *SAPINST_JRE_HOME* variable to point to an alternative JRE.



Note: The same environment variables need to be set for UNIX operating systems.



Hint: If you need additional JRE or JDK installations, because additional software running on the same host require this, you can also set the environment variables to be user specific.

Download JCE Policy Files

As of SAP NetWeaver 7.0 strong encryption is mandatory for the SAP NetWeaver AS Java and for all usage types that are deployed on it. You need to obtain the *Java Cryptography Extension (JCE) Unlimited Strength Jurisdiction Policy Files 1.4.2* beforehand so that they can be installed by SAPinst. Download the JCE policy files for your platform at <http://java.sun.com/products/jce/downloads>. SAPinst installs the JCE policy files during the installation process.



<http://java.sun.com/j2se/1.4.2/download.html>

J2SE 1.4.2
Download Java 2 Platform, Standard Edition, v 1.4.2 (J2SE)

Other Downloads

Platform - Java(TM) Cryptography Extension (JCE) Unlimited Strength Jurisdiction Policy Files 1.4.2		
<input checked="" type="checkbox"/>	Download	
<input type="checkbox"/>	Download	jce_policy-1_4_2.zip 11.91 KB

Figure 27: JCE Policy Files

Prerequisites Check

You should check the hardware and software requirements for your operating system (OS) and the SAP instances using the **Prerequisite Checker** tool.

The *Prerequisite Checker* provides information about the requirements that you need to meet before you start the installation. For example, it checks the requirements for the different installation services.

Before using this tool consult SAP note 855498 - *Installation Prerequisite Checker* to get the latest **update** for the prerequisite checker. Download the attachment fitting to your installation, here *PREREQUISITE_CHECK_DATA_700.SAR* and save it on the host. Extract the sar file using *sapcar*. When executing the check, reference the extracted xml file.

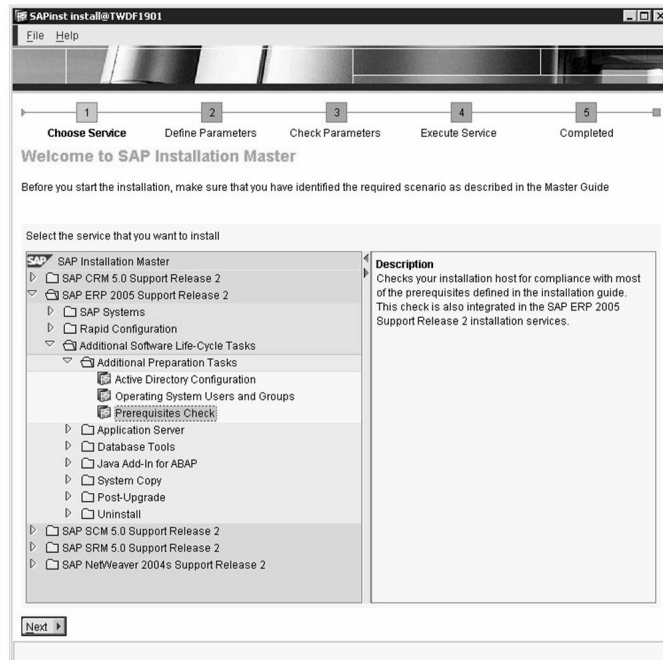


Figure 28: Prerequisites Check 1/9

On the welcome screen, choose: *SAP ERP 2005 Support Release 2* → *Additional Software Life-Cycle Tasks* → *Additional Preparation Tasks* → *Prerequisites Check*.



Figure 29: Prerequisites Check 2/9

Use the *Browse* button to reference the extracted file and choose *Next*.



SAPinst install@TWDF1901: SAP ERP 2005 Support Release 2 > Additional Software Life-Cycle Tasks > Additional Pre...

File Help

1 Choose Service 2 Define Parameters 3 Check Parameters 4 Execute Service 5 Completed

Prerequisites Checker > Services

Select the tasks for which you want to check specific prerequisites

Services for Check
If you do not choose any task, only the essential prerequisites for an installation are checked. If you plan to install a SAP system with usage types based on AS ABAP and AS Java, choose the instances for both.

Check Prerequisites	Task
<input type="checkbox"/>	Java EE Engine Update
<input type="checkbox"/>	Developer Workplace
<input checked="" type="checkbox"/>	Database Instance (AS ABAP)
<input checked="" type="checkbox"/>	Primary Application Server Instance (AS ABAP)
<input checked="" type="checkbox"/>	Central Services Instance for ABAP (AS ABAP)
<input checked="" type="checkbox"/>	Dialog Instance (AS ABAP)
<input checked="" type="checkbox"/>	Database Instance (AS Java)
<input checked="" type="checkbox"/>	Primary Application Server Instance (AS Java)
<input checked="" type="checkbox"/>	Application Server Instance (AS Java)
<input checked="" type="checkbox"/>	Central Services Instance (AS Java)
<input type="checkbox"/>	PI Usage Type

Back Next

Figure 30: Prerequisites Check 3/9

Select all check boxes relevant to your installation and choose *Next*.



The screenshot shows the SAPinst installation window for SAP ERP 2005 Support Release 2. The window title is "SAPinst Install@TWDF1901: SAP ERP 2005 Support Release 2 > Additional Software Life-Cycle Tasks > Additional Pre...". The progress bar at the top indicates five steps: 1. Choose Service, 2. Define Parameters (current step), 3. Check Parameters, 4. Execute Service, and 5. Completed.

The main content area is titled "Prerequisites Checker > Database Information". Below the title, it says "Select your database type and specify the version if required".

There is a table titled "Database Information" with the following columns: Task, Database Role, Database Type, and Database Version.

Task	Database Role	Database Type	Database Version
Database Inst...	Database for AS ABAP	MaxDB	
Database Inst...	Database for AS Java	MaxDB	

At the bottom of the window, there are "Back" and "Next" buttons.

Figure 31: Prerequisites Check 4/9

Select the correct database for your installation and choose *Next*.



SAPinst install@TWDF1901: SAP ERP 2005 Support Release 2 > Additional Software Life-Cycle Tasks > Additional Pre...

File Help

1 Choose Service 2 **Define Parameters** 3 Check Parameters 4 Execute Service 5 Completed

Prerequisites Checker > SAP System

Specify whether your SAP system is a Unicode system or not

SAP System Information

Task	System Role	Unicode System	JAVA_HOME	
Database Instance ...	SAP System based on AS ABAP	<input checked="" type="checkbox"/>		Browse...
Primary Applicatio...	SAP System based on AS ABAP	<input checked="" type="checkbox"/>		Browse...
Central Services I...	SAP System based on AS ABAP	<input checked="" type="checkbox"/>		Browse...
Dialog Instance (A...	SAP System based on AS ABAP	<input checked="" type="checkbox"/>		Browse...

Back Next

Figure 32: Prerequisites Check 5/9

Choose *Next*.



SAPinst install@TWDF1901: SAP ERP 2005 Support Release 2 > Additional Software Life-Cycle Tasks > Additional Pre...

File Help

1 Choose Service 2 Define Parameters 3 Check Parameters 4 Execute Service 5 Completed

Parameter Summary

Choose 'Start' to start with the values shown or select the parameters you want to change and choose 'Revise'

Parameter List

☐ **Prerequisites Checker > Data File for Check**

Data File for Check
G:\prerequisite\PREREQUISITE_CHECK_DATA.XML

☐ **Prerequisites Checker > Services**

Check Prerequisites Task

☐ Java EE Engine Update

☐ Developer Workplace

☐ **Prerequisites Checker > Database Information**

Task	Database Role	Database Type	Database Version
Database In...	Database for AS ABAP	MaxDB	
Database In...	Database for AS Java	MaxDB	

☐ **Prerequisites Checker > SAP System**

Task	System Role	Unicode System	JAVA_HOME
Database Instance...	SAP System based on AS ...	<input checked="" type="checkbox"/>	
Primary Applicati...	SAP System based on AS ...	<input checked="" type="checkbox"/>	

Revise Start

Figure 33: Prerequisites Check 6/9

Check the parameter values you entered and choose *Start*.

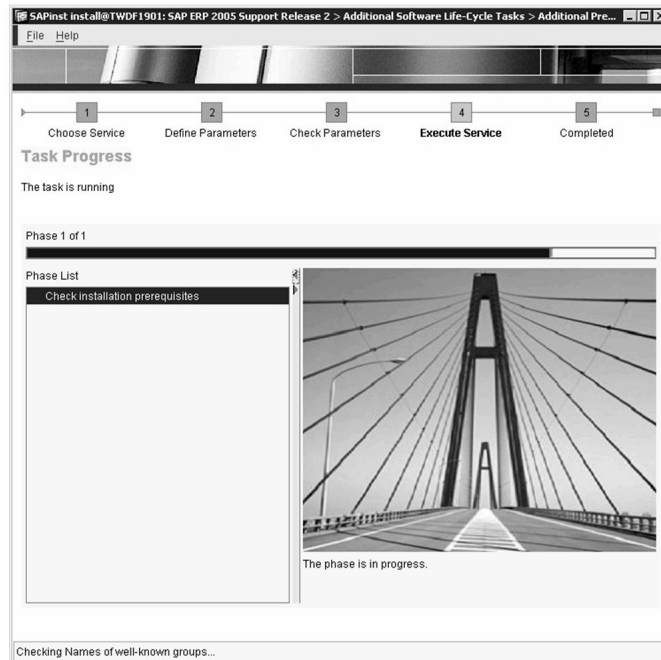


Figure 34: Prerequisites Check 7/9

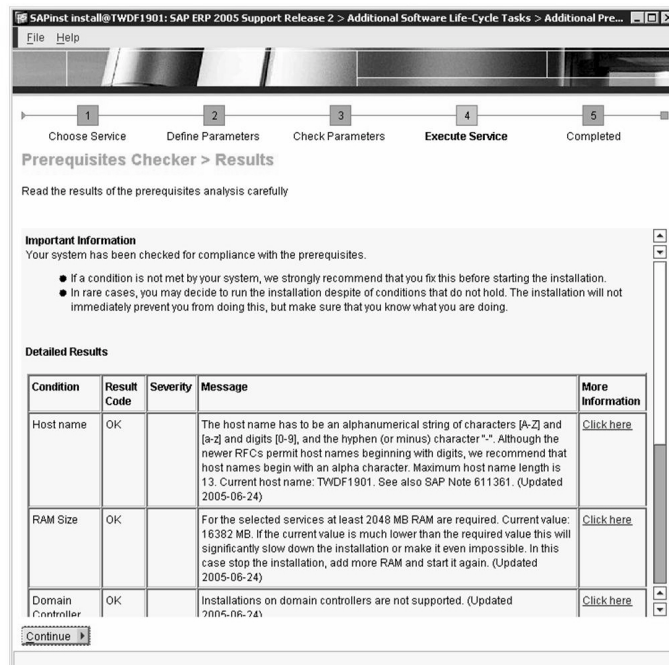


Figure 35: Prerequisites Check 8/9

Red lines denote an error, yellow entries mark a warning and white lines are information messages. Choose *Continue*.

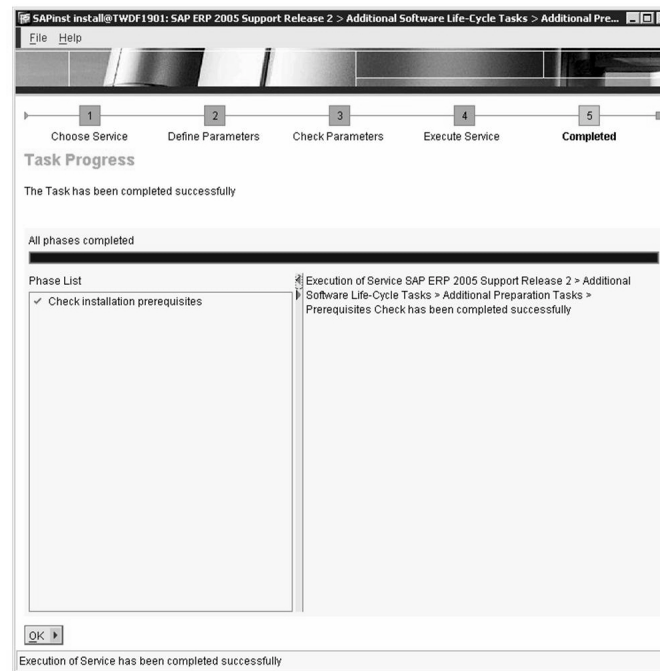


Figure 36: Prerequisites Check 9/9

Choose *OK*.

In addition to using the Prerequisite Checker you also have to check the requirements checklists for the installed services mentioned in the installation guide.

Generate Solution Manager Key



Figure 37: Generate Solution Manager Key

When installing a component from SAP ERP 6.0 or SAP NetWeaver 7.0 you will need a key generated by the SAP Solution Manager. Without this key a successful installation is not possible. SAP note 811923 - *Generating the SAP Solution Manager key* describes how to generate the key.

As *System Number* you have to enter the instance number you plan to install.

Exercise 2: Prepare the Installation Part 1/2

Exercise Objectives

After completing this exercise, you will be able to:

- Install the JDK
- Execute the Prerequisite Checker
- Generate an SAP Solution Manager key for the installation

Business Example

ABC Limited, a petrochemical company, uses SAP to manage its data. The company now wants to install the latest version of the SAP, SAP ERP Central Component (SAP ECC), to use the functions delivered with the extension sets of SAP ERP Central Component. As the system administrator of ABC, you need to install SAP ERP Central Component. Before installing SAP ERP Central Component, you should perform some general preparation steps.

Task 1: Check DVDs

Check if the installation DVDs are available.

1. To log on to your host, use the host name, the user name, and the password given to you by your instructor.



Note: Use a Terminal Service Client to connect to your host.

You find the installation DVDs under G:\ADM110.

Task 2: JDK Installation

Prepare the SAP NetWeaver AS Java installation by installing the JDK and setting the JAVA_HOME variable.

1. Install the JDK (**j2sdk-1_4_2_15-windows-amd64.exe**) to G:\J2SDK. You should find the file on the training share.
2. Set the **JAVA_HOME** environment variable to the just installed Java home directory **G:\J2SDK**.

Continued on next page

Task 3: JCE Policy Files

Copy the JCE Policy Files to your host.

1. Copy the JCE Policy Files from the training share to a local directory.

Task 4: Prerequisites Check

Use the Prerequisite Checker to check the hardware and software requirements.

1. Copy the *PREREQUISITE_CHECK_DATA.XML* from the training share to a local directory.
2. Start SAPinst from directory *G:\ADM110\Business_Suite_2005_SR2_Installation_Master\IM_WINDOWS_X86_64* by double clicking *sapinst.exe*

Follow the instruction from the course document section *Prerequisites Check*.
Reference the copied xml file.

Task 5: SAP Solution Manager Key

Generate the SAP Solution Manager key for the installation.

1. Log on to the Solution Manager given by your instructor, start transaction SMSY, and generate the key for the installation.



Note: See figure *Generate Solution Manager Key* of the course document.

Solution 2: Prepare the Installation Part 1/2

Task 1: Check DVDs

Check if the installation DVDs are available.

1. To log on to your host, use the host name, the user name, and the password given to you by your instructor.



Note: Use a Terminal Service Client to connect to your host.

You find the installation DVDs under G:\ADM110.

- a) Follow the exercise description.

Task 2: JDK Installation

Prepare the SAP NetWeaver AS Java installation by installing the JDK and setting the JAVA_HOME variable.

1. Install the JDK (**j2sdk-1_4_2_15-windows-amd64.exe**) to G:\J2SDK. You should find the file on the training share.
 - a) Copy the file *j2sdk-1_4_2_15-windows-amd64.exe* from the training share to a local directory and double click it. Follow the figures *Windows: JDK Installation* from the course document and choose G:\J2SDK as the installation directory.
2. Set the **JAVA_HOME** environment variable to the just installed Java home directory **G:\J2SDK**.
 - a) Choose *Start → Settings → Control Panel → System* and switch to the *Advanced* tab. Select *Environment Variables*.

Follow the figures *Windows: Environment Variable JAVA_HOME*.

Task 3: JCE Policy Files

Copy the JCE Policy Files to your host.

1. Copy the JCE Policy Files from the training share to a local directory.
 - a) Follow the step description.

Continued on next page

Task 4: Prerequisites Check

Use the Prerequisite Checker to check the hardware and software requirements.

1. Copy the *PREREQUISITE_CHECK_DATA.XML* from the training share to a local directory.
 - a) Follow the step description.
2. Start SAPinst from directory *G:\ADM110\Business_Suite_2005_SR2_Installation_Master\IM_WINDOWS_X86_64* by double clicking *sapinst.exe*

Follow the instruction from the course document section *Prerequisites Check*. Reference the copied xml file.

Task 5: SAP Solution Manager Key

Generate the SAP Solution Manager key for the installation.

1. Log on to the Solution Manager given by your instructor, start transaction SMSY, and generate the key for the installation.



Note: See figure *Generate Solution Manager Key* of the course document.

- a) Log on to the Solution Manager system. The necessary information will be provided to you by the instructor.
- b) Start transaction SMSY.
- c) Choose *System Landscape* → *Other Object...*
- d) Use the F4-help for the *System* field to select any system ID from the list.



Note: If there is no system at all, you can create one by giving the minimum necessary information.

- e) Choose *Generate Installation/Upgrade Key*.
- f) Enter the *System ID* you want to install, for example **E##**.

Enter the *System Number* (instance number) of the central instance you want to install, for example **00**.

Enter the host name where you will install the *Message Server*, for example **twdf1234**.

- g) Choose *Generate Key* and copy and paste the generated key to a text file (for example with notepad). This key is needed later on during the installation of the SAP ECC system.



Lesson Summary

You should now be able to:

- Perform the general preparation steps needed to install SAP ERP Central Component

Lesson: Further Preparation for Installation on Windows

Lesson Overview

This lesson discusses the preparation steps that you need to perform in addition to the general preparation steps to install SAP ERP Central Component on the Windows operating system.



Lesson Objectives

After completing this lesson, you will be able to:

- Perform the necessary preparation steps to install SAP ERP Central Component on Windows

Business Example

ABC Limited is a petrochemical company, which has been using the SAP system to manage its data. ABC Limited now wants to install the latest version of SAP system, SAP ERP Central Component (SAP ECC), to use the functions delivered with the extension set of SAP ERP Central Component. As the system administrator of ABC, you need to install SAP ERP Central Component on the Windows operating system. Before installing SAP ERP Central Component on Windows, you should perform some preparation steps.

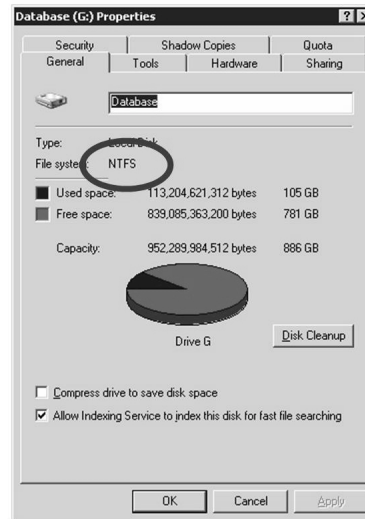
Preparing for Installation in Windows

When installing an SAP System on a Windows operating system you have to do the following Windows specific preparations:



- Check Windows File System
- Reduce Size of File Cache
- Prepare Installation User
- Prepare Transport Host

Check Windows File System



**You must use NTFS for an SAP system installation.
Do not install the SAP directories on a FAT partition.**

Figure 38: Windows File System: NTFS

You must install an SAP system on an NTFS file system. Check the partition on which you plan to install SAP ERP Central Component for the correct file system type:



- Open Windows Explorer.
- Select a root directory, such as G:.
- Choose *Properties*.
- Switch to the *General* tab to see the type of file system in use.

Domain or local installation

You can decide, if you want to install your system on the hosts locally or using a Windows domain. SAP recommends to perform a domain installation.

For a domain installation SAP recommends that all SAP system and database hosts are members of a single Windows domain. This is valid for all SAP system setups, whether standalone central systems or distributed systems. In the single domain model, SAP ERP Central Component and the user accounts are included in a single domain.



Caution: You cannot create local users and groups on the host that is used as domain controller. Therefore, SAP does **not** support running an SAP instance (including the database instance) on the host where the DNS service is installed.

For performance and security reasons, make sure that you do not run an SAP instance (including the database instance) on the host where the domain controller is running. SAP does not support an SAP system installation on a domain controller.

If you want to use the Change and Transport system to move objects between different SAP systems, such as SAP systems with different SAPSIDs, ensure that all the systems are either members of a single domain or members of different domains with a trust relationship established between them. Only SAP application and database servers (no other software) should be members of the domains.

Installation User

For a local installation, your user needs local administration rights; for a domain installation, your user needs domain administration rights.

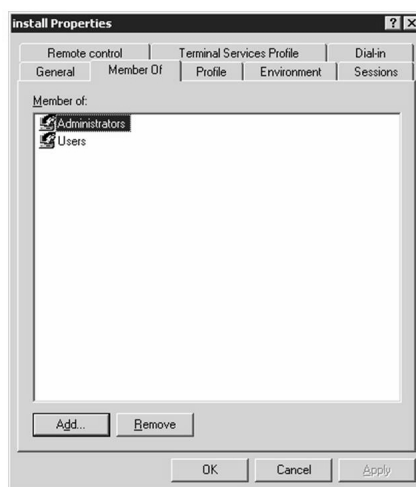


Figure 39: Windows: User needs Administration Rights

For the local installation, you need a user who is member of the local *Administrators* group. To check if your user is a member of the group, choose *Start* → *Settings* → *Control Panel* → *Administrative Tools* → *Computer Management* and select the *Local Users and Groups* → *Users* folder. Choose your user and switch to the *Member Of* tab.

Normally when doing a domain installation you need to be a domain administrator. Anyhow it is possible to do a domain installation with local administration rights. In this case the domain administrator has to prepare some additional things. See the installation guide for a detailed description.



Caution: Do not use the user <sid>adm for the installation of the SAP system.

Reduce Size of File Cache

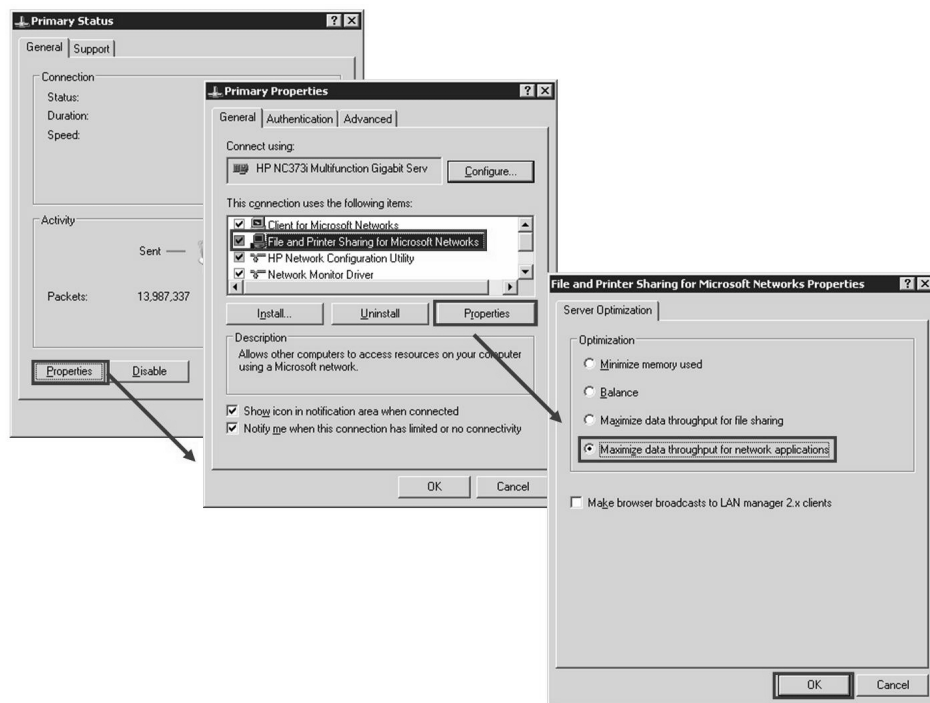


Figure 40: Windows: Reducing the Size of the File Cache

When the *Maximize data throughput for network applications* option is selected, the Windows file cache is reduced in size so that application server software, such as an SAP system, has more resources available. This also decreases the time needed for the installation, especially for the database import. To check the setting go to *Start* → *Settings* → *Network Connections*, right click on the active connection and choose *Properties* from the context menu.

Prepare the Transport Host

The transport host has a directory structure that is used by the SAP transport system to store transport data and metadata. The transport system stores the change information, such as ABAP programs, data dictionary data, customizing data as well as SAP

support packages from SAP Service Marketplace in files that are located in this directory structure. If you do not intend to use the directory structure of the system you are going to install, you need to prepare it on the transport host.

You need to prepare one host in SAP ERP Central Component for the role of transport host. This host has the function of controlling the import or export of files between the current SAP system and other SAP systems, such as a test or production system.

The global transport directory `\usr\sap\trans` is used by the Change and Transport System (CTS). The CTS helps you to organize development projects in the ABAP Workbench and in Customizing, and then transport the changes between the SAP systems in your system landscape.

- If you install the first system of the system landscape, for example the development system you can use the installed file system structure on the host of the central instance of this system.
- If the directory structure already exists, you must set up its security to allow the new system to write into it.
- If it does not yet exist, you must create the core directory structure and a share to export it for other computers as well as setting the security on it.

If your transport host is not the central instance host, you have to create the transport directory as follows:



1. On the transport host, create the directory `\usr\sap\trans`.
2. Grant *Everyone* the permission *Full Control* for the directory.
3. Share the `usr\sap` directory on the transport host as `SAPMNT`. This enables SAPinst to address the transport directory in the standard way as `\\SAPTRANSHOST\SAPMNT\trans`.



Note: These permissions are only necessary during the SAPinst installation. You must remove them after you have finished the installation. After the installation, you only have to grant *Full Control* on this directory to the `SAP_<SAPSID>_GlobalAdmin` groups of all the systems that are part of your transport infrastructure. SAPinst assigns the appropriate rights with the help of an additional `SAP_<SAPSID>_LocalAdmin` group.

Changes to File System Structure

As of Release SAP NetWeaver 7.0 the structure of the Windows file system for the SAP system's kernel undergoes some minor changes. When upgrading from an older release to 7.0 you need to manually adapt this structure. When installing a new system you don't need to do additional work. See SAP Note **919046** for details. These changes don't apply for systems running on UNIX operating systems.

Preparation Checklist for Installation in Windows

Exercise 3: Prepare the Installation Part 2/2

Exercise Objectives

After completing this exercise, you will be able to:

- Check Windows File System
- Reduce Size of File Cache
- Check Installation User

Business Example

You are the system administrator of ABC, a petrochemical company. You have to install the latest version of SAP, SAP ERP Central Component (SAP ECC). Before installing SAP ECC, you need to perform the necessary preparation steps.

Task 1: Check the Windows File System

Check if the file system is NTFS.

1. Check if the file system of the installation partition (G:) is NTFS.

Task 2: Installation User

Check if your user has administration rights.

1. Check if your user has administration rights.

Task 3: Reduce Size of File Cache

Reduce the size of the Windows file cache.

1. Reduce the size of the Windows file cache by editing the properties of the local area connection.

Solution 3: Prepare the Installation Part 2/2

Task 1: Check the Windows File System

Check if the file system is NTFS.

1. Check if the file system of the installation partition (G:) is NTFS.
 - a) Check if the file system of the installation partition (G:) is NTFS.

Follow the directions given in section *Check Windows File System*.

Task 2: Installation User

Check if your user has administration rights.

1. Check if your user has administration rights.
 - a) Check if your user has administration rights.

Follow the directions given in section *Installation User*.

Task 3: Reduce Size of File Cache

Reduce the size of the Windows file cache.

1. Reduce the size of the Windows file cache by editing the properties of the local area connection.
 - a) Reduce the size of the Windows file cache by editing the properties of the local area connection.

Follow the directions given in section *Reduce Size of File Cache*.



Lesson Summary

You should now be able to:

- Perform the necessary preparation steps to install SAP ERP Central Component on Windows

Lesson: Further Preparation for Installation on UNIX

Lesson Overview

This lesson discusses the preparation steps that you need to perform in addition to the general preparation steps to install SAP ERP Central Component on the UNIX operating system.



Lesson Objectives

After completing this lesson, you will be able to:

- Perform the necessary preparation steps to install SAP ERP Central Component on UNIX

Business Example

XYZ Limited, a sister company of ABC Limited, is also using the SAP system for data management. The company now wants to install the latest version of SAP system, SAP ERP Central Component, to use the functions delivered with the extension set of SAP ERP Central Component. The company is using the UNIX operating system on its computers. You have been assigned to the task of performing the preparatory steps to install SAP ERP Central Component in the UNIX environment.

Adapting Kernel Parameters

For many UNIX operation system and database system combinations, you have to modify the kernel parameters. The details are given in the installation guide fitting to your operating system.

Creating Operating System Users

If you do not want SAPinst to create operating systems users, groups and services, you can optionally create them manually before the installation.

For details which users have to be created and how, see the installation guide.



Hint: If you install a distributed system and you do not use central user management (for example, NIS), and you use local operating system user accounts instead, then <sid>adm and the database operating system user must have the same password on all hosts.

NIS

If you use Network Information Service (NIS), you need to distribute users over the network.

SAPinst checks all required users, groups, and services on the local machine. If you manage users, groups or services network-wide in your company, we recommend that you create the user and group NIS entries before running SAPinst

SAPinst checks if the required services are available on the host and creates them if necessary. See the log messages about the service entries and adapt the network-wide (NIS) entries accordingly. SAPinst checks the NIS users, groups and services using NIS commands. However, SAPinst does not change NIS configurations.

Setting Up File Systems

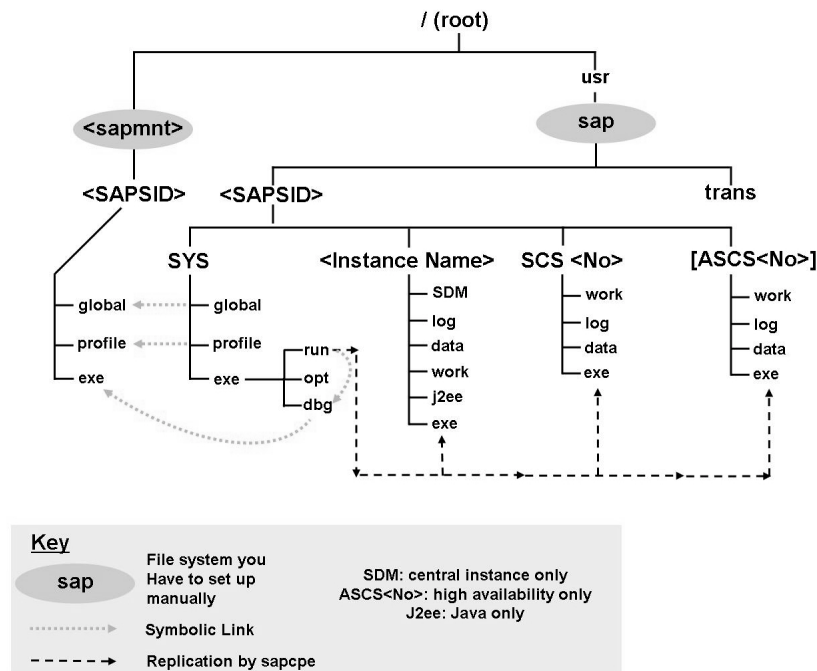


Figure 41: UNIX: Setting Up File Systems

You have to set up the file systems and/or raw devices for SAP ERP Central Component and the database. You have to manually set up the file systems selected in the figure; SAPinst will do the rest during the installation process.

For the space required by different file systems, refer to your installation guide.

The processes of creating and mounting file systems and creating raw devices for SAP ERP Central Component and for different databases are described in the installation guide.



Note: Depending on the database you choose, you have to set up additional file systems for the database.

Exporting and Mounting the Global Transport Directory

In your SAP system landscape, a global transport directory for all SAP systems is required.

- If this global transport directory already exists, make sure that it is exported on the global transport directory host and mount it on the SAP instance installation host.
- If this global transport directory does not exist, proceed as follows:
 - Create the transport directory (either on the central instance host or on a file server).
 - Export it on the global transport directory host.
 - If you did not create the transport directory on your SAP instance installation host, mount it there.

Preparation Checklist for Installation on UNIX



<input checked="" type="checkbox"/>	
	Installation guides downloaded and printed
	SAP Notes downloaded and printed
	Installation guides and SAP Notes read
	SAP Front End available
	DVDs available (copied to disk / in DVD drive)
	OPT.: Users created
	UNIX kernel parameters checked / set
	File system set up
	JDK installed
	JAVA_HOME and/or SAPINST_JRE_HOME set
	DISPLAY set
	AS Java: JCE Policy Files downloaded
	Prerequisites checked
	Solution Manager key generated

Figure 42: Preparation Checklist for UNIX



Lesson Summary

You should now be able to:

- Perform the necessary preparation steps to install SAP ERP Central Component on UNIX

Lesson: SAP Solution Manager Installation

Lesson Overview



Lesson Objectives

After completing this lesson, you will be able to:

- describe how to install SAP Solution Manager

Business Example

ABC Limited, a petrochemical company, uses SAP to manage its data. The company now wants to install the latest version of the SAP, SAP ERP Central Component (SAP ECC), to use the functions delivered with the extension sets of SAP ERP Central Component. As the system administrator of ABC, you need to install SAP ERP Central Component. For installing SAP ERP Central Component, you will need a key generated by SAP Solution Manager. If you have no SAP Solution Manager installed yet, you need to do it before the SAP ECC installation.

SAP Solution Manager Installation

The following figures show the installation steps for SAP Solution Manager 4.0 SR2 on Windows and MaxDB.

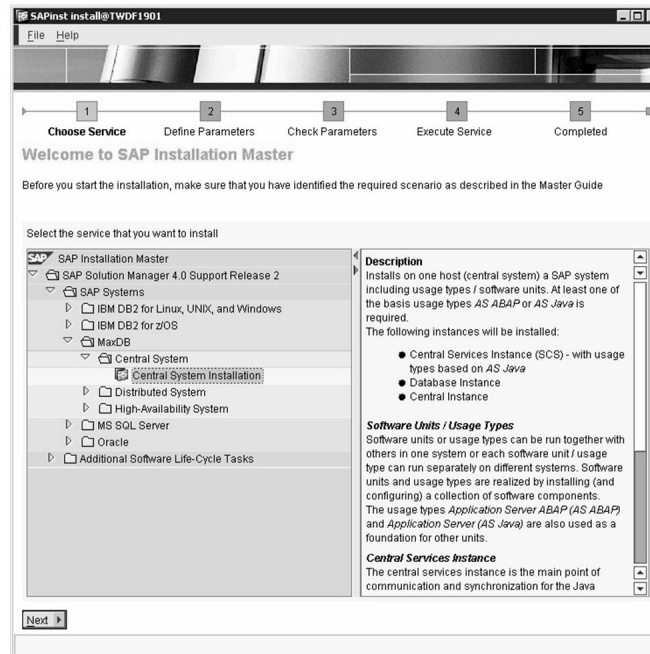


Figure 43: SAP Solution Manager Installation 01/17

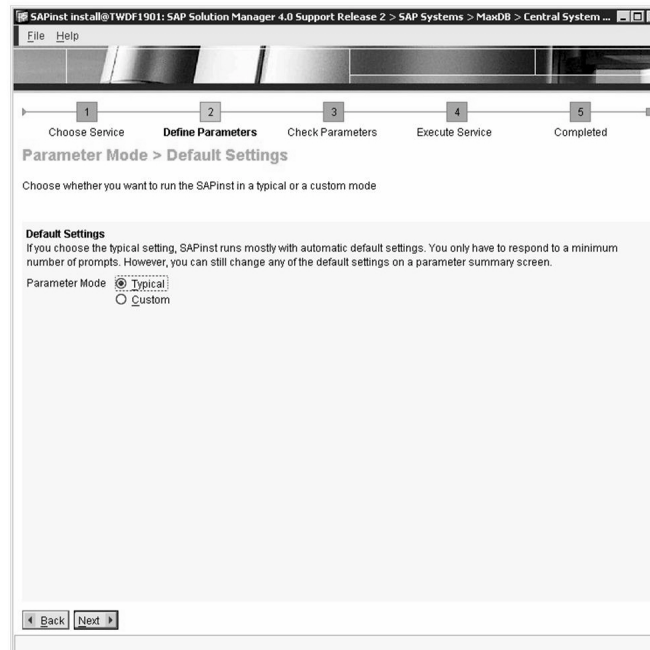


Figure 44: SAP Solution Manager Installation 02/17



Figure 45: SAP Solution Manager Installation 03/17

Browse to Java DVD at *G:\ADM110\Solution_Manager40_SR2_JAVA*

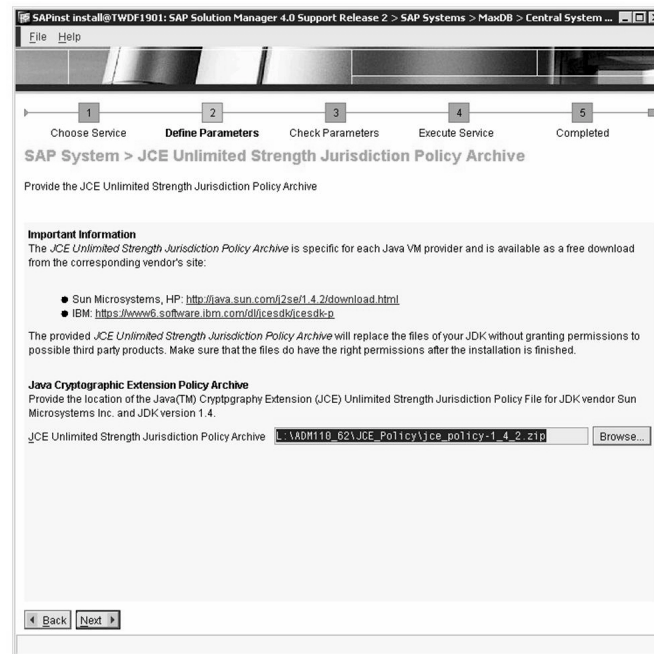


Figure 46: SAP Solution Manager Installation 04/17

Browse to locally stored JCE Policy Files.

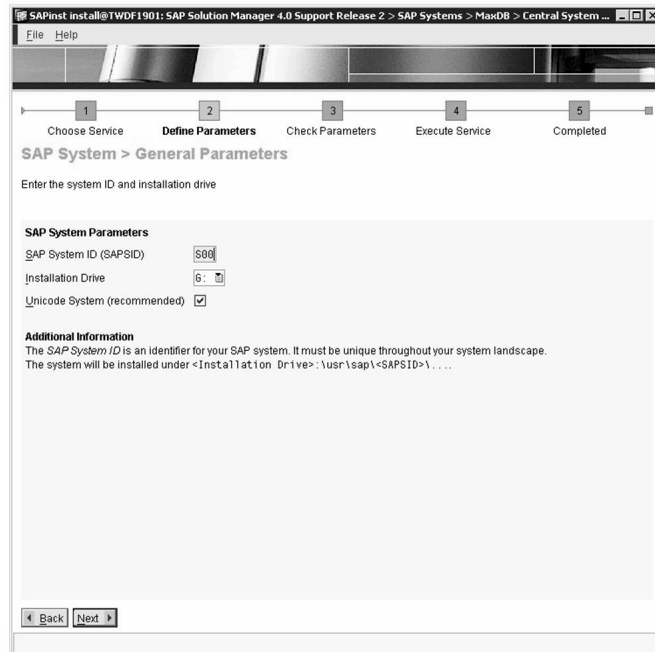


Figure 47: SAP Solution Manager Installation 05/17

Choose SID and G:.



The screenshot shows the SAPinst installation wizard window. The title bar reads 'SAPinst install@TWDF1901: SAP Solution Manager 4.0 Support Release 2 > SAP Systems > MaxDB > Central System ...'. The window has a menu bar with 'File' and 'Help'. Below the menu bar is a progress bar with five steps: 1. Choose Service, 2. Define Parameters (current step), 3. Check Parameters, 4. Execute Service, and 5. Completed. The main content area is titled 'SAP System > Master Password' and contains the text 'Enter the master password all users'. Below this is a section titled 'Master Password' with a description: 'The password will be used for all accounts SAPinst creates and for the secure store key phrase. The length has to be 8-14 characters. Depending on your installation scenario there might be more restrictions.' There are two input fields: 'Password for all users of this SAP system' and 'Confirm', both masked with asterisks. Below these is an 'Additional Information' section with text explaining that the master password can be changed later in the summary screen. At the bottom are 'Back' and 'Next' buttons.

Figure 48: SAP Solution Manager Installation 06/17

Choose master password.



Figure 49: SAP Solution Manager Installation 07/17

Choose DB SID.



Figure 50: SAP Solution Manager Installation 08/17

Browse to Export DVD at *G:\ADM110\Solution_Manager40_SR2_Installation_Export_Language*.



Figure 51: SAP Solution Manager Installation 09/17

Browse to MaxDB RDBMS DVD at *G:\ADM110\MaxDB_760_RDBMS*.



SAPinst install@TWDF1901: SAP Solution Manager 4.0 Support Release 2 > SAP Systems > MaxDB > Central System ...

File Help

1 Choose Service 2 Define Parameters 3 Check Parameters 4 Execute Service 5 Completed

Media Browser > Software Package Request

Enter the location of the required software packages

Software Package(s)

Media Name	Package Location	Copy Package To
Kernel NW04sSR2	G:\ADM110_ECC6_SR2_DVD1ke... Browse...	Browse...

Additional Information

SAPinst will detect the required software packages on the media and check the corresponding package identification files LABELASC.

If you want to copy the media to your local disk, enter the target location in the Copy Package To column.

Cancel OK

Figure 52: SAP Solution Manager Installation 10/17

Browse to kernel DVD at *G:\ADM110\SAP_Kernel_700_SR2_Windows*.



Figure 53: SAP Solution Manager Installation 11/17

Choose local SLD.



The screenshot shows the 'SAPinst install@TWDF1901: SAP Solution Manager 4.0 Support Release 2 > SAP Systems > MaxDB > Central System ...' window. The progress bar indicates the 'Define Parameters' step (2) is active. The main title is 'SAP System > Local SLD'. Below the title, it says 'Enter the parameters for a local SLD configuration'. The form is divided into sections: 'Object Server' (with a text box for 'mynamespace'), 'Self-Registration in Local SLD' (with fields for 'SLDDUSER', password, and confirm), 'Communication to Local SLD' (with fields for 'SLD API USER', password, and confirm), and 'Additional Information'. At the bottom, there are 'Back' and 'Next' buttons.

Figure 54: SAP Solution Manager Installation 12/17

Enter your company's namespace without slashes, for example **mynamespace**, reserved at <http://service.sap.com/namespaces> and leave other settings as they are.

See SAP note 935245 - *Importance of "Object Server" SLD parameter* for further information.

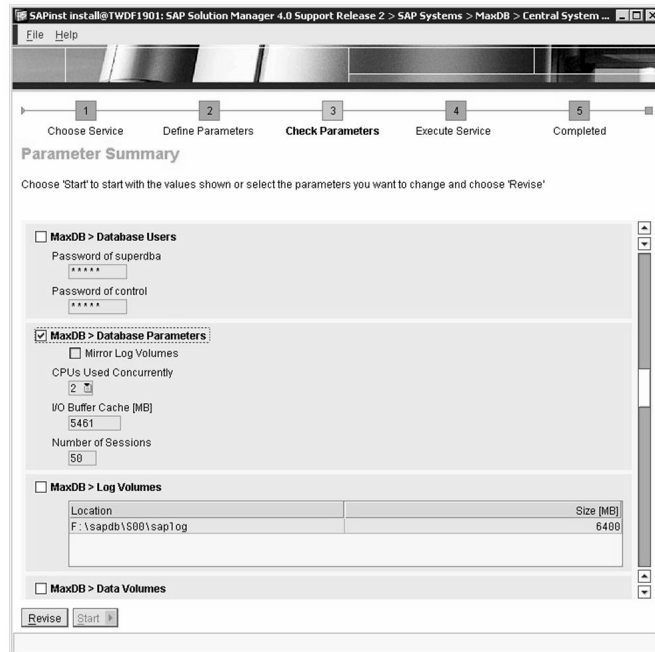


Figure 55: SAP Solution Manager Installation 13/17

Check *MaxDB > Database Parameters* and *MaxDB > Log Volumes* and choose *Revise*.



SAPinst install@TWDF1901: SAP Solution Manager 4.0 Support Release 2 > SAP Systems > MaxDB > Central System ...

File Help

1 Choose Service 2 Define Parameters 3 Check Parameters 4 Execute Service 5 Completed

MaxDB > Database Parameters

Enter the parameters for the database instance

Database Identification

Database Host TWDF1901
Database ID (DBSID) S00

Database Parameters

Mirror Log Volumes ☐
CPUs Used Concurrently 1
I/O Buffer Cache (MB) 1024
Number of Sessions 50

Additional Information
The suggested value of *Number of Sessions* considers only the initial installation.
If you plan to install further dialog instances, you have to increase the initial value.
Each database session requires its own memory.

Back Next

Figure 56: SAP Solution Manager Installation 14/17

Change parameters like given in the figure above.



SAPinst install@TWDF1901: SAP Solution Manager 4.0 Support Release 2 > SAP Systems > MaxDB > Central System ...

File Help

1 Choose Service 2 Define Parameters 3 Check Parameters 4 Execute Service 5 Completed

MaxDB > Log Volumes

Specify the log volumes for your database

Database Parameters

Database ID (DBSID) S00
Minimum Log Size (MB) 6400

Log Volumes
Each row of the table below represents a log volume.

Location	Size (MB)
G:\sapdb\S00\saplog	6400

Add Remove

Back Next

Figure 57: SAP Solution Manager Installation 15/17

Be sure logs are going to **G:**.



Hint: Double click into the field and change the drive letter directly. That's faster than browsing.



Caution: For productive installations data files and log files should be installed on separate drives!



The screenshot shows the SAPinst installation wizard window titled 'SAPinst install@TWDF1901: SAP Solution Manager 4.0 Support Release 2 > SAP Systems > MaxDB > Central System ...'. The window has a menu bar with 'File' and 'Help'. Below the menu bar is a progress bar with five steps: 1. Choose Service, 2. Define Parameters, 3. Check Parameters, 4. Execute Service, and 5. Completed. The 'Check Parameters' step is currently active. The main area is titled 'Parameter Summary' and contains a list of parameters to be checked or revised. The parameters are grouped into five sections, each with a checkbox and a description:

- ☐ **SAP System > Database Import**
Number of Parallel Jobs: 3
- ☐ **SAP System > Secure Store Settings**
Key Phrase (8-30 characters): *****
- ☐ **MaxDB > Create Database Statistics**
Database Statistics: Skip statistics creation
- ☐ **SAP System > Central and SCS Instance**
Central Instance Number: 00
SCS Instance Number: 01
- ☐ **SAP System > Central and SCS Instance**
ABAP Messaging Service Port: 3600
Internal ABAP Messaging Service Port: 3900

At the bottom of the window, there are two buttons: 'Revise' and 'Start'.

Figure 58: SAP Solution Manager Installation 16/17

Choose *Start* and wait.



Figure 59: SAP Solution Manager Installation 17/17

On the final screen choose *Ok*.



Lesson Summary

You should now be able to:

- describe how to install SAP Solution Manager



Unit Summary

You should now be able to:

- Perform the general preparation steps needed to install SAP ERP Central Component
- Perform the necessary preparation steps to install SAP ERP Central Component on Windows
- Perform the necessary preparation steps to install SAP ERP Central Component on UNIX
- describe how to install SAP Solution Manager

Related Information

SAP Service Marketplace <http://service.sap.com>:

Quick Links /platforms, /instguides, /swdc, /solutionmanager



Test Your Knowledge

1. Before installing SAP ERP Central Component, you should ensure that the front-end software is installed on _____ in your system environment.

Fill in the blanks to complete the sentence.

2. What are the necessary preparation steps to do a SAP ECC 6.0 installation?

Choose the correct answer(s).

- ☐ A Do a Prerequisites Check?
- ☐ B Install the right JDK?
- ☐ C Install and configure SAPinst?
- ☐ D Rename the host to SAP<sid><instance number>?

3. Name at least one file system that you need to set up manually.



Answers

1. Before installing SAP ERP Central Component, you should ensure that the front-end software is installed on at least one host computer in your system environment.

Answer: at least one host computer

2. What are the necessary preparation steps to do a SAP ECC 6.0 installation?

Answer: A, B

SAPinst installs itself on execution. The host does not need to be renamed.

3. Name at least one file system that you need to set up manually.

Answer: These file systems need to be set up manually: /sap, /sap/trans, /sap/<SID>, /sapmnt/<SID>

Unit 4

Installing SAP GUI

Unit Overview

This unit explains how to install SAP GUI for Windows and SAP GUI for Java.



Unit Objectives

After completing this unit, you will be able to:

- Describe the different types of SAP GUI
- Install the SAP GUI for Java
- Perform a local SAP GUI for Windows installation
- Patch a local SAP GUI for Windows
- Perform a SAP GUI Installation Server installation
- Create a SAP GUI Installation package
- Perform an unattended SAP GUI installation using the SAP GUI Installation Server

Unit Contents

Lesson: Installation of SAP GUI for Windows and Java	114
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Lesson: Installation of SAP GUI for Windows and Java

Lesson Overview

This lesson explains how to install and patch SAP GUI for Windows. Additionally you will find information about the installation of SAP GUI for Java. A local SAP GUI is installed during this lesson. The lesson also explains how to patch SAP GUI.



Lesson Objectives

After completing this lesson, you will be able to:

- Describe the different types of SAP GUI
- Install the SAP GUI for Java
- Perform a local SAP GUI for Windows installation
- Patch a local SAP GUI for Windows

Business Example

A petrochemical company, ABC Limited, uses SAP to manage its data. The company now wants to install the latest version of SAP ECC, to use the functions delivered with the extension set of SAP ERP Central Component. As the system administrator of company ABC, you need to install SAP ECC and install the SAP GUI on all end-user computers so that the users can access SAP ECC easily and comfortably.

Variants of the SAP GUI

The use of SAP GUI is supported on many different operating systems. The operating systems support is provided by the different variants of the SAP GUI. The different types of SAP GUI are listed in the following figure

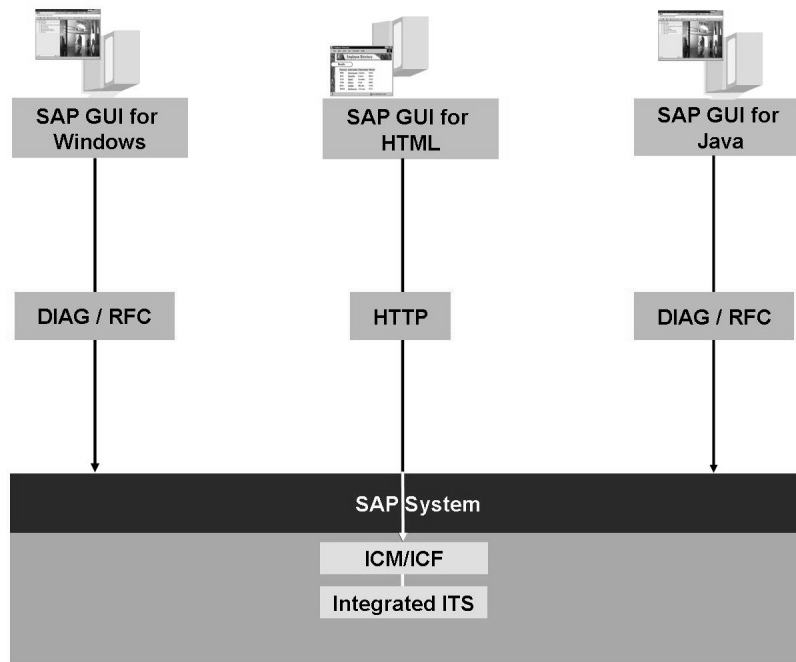


Figure 60: Variants of the SAP GUI

There are **three** classical GUI variants to access SAP systems:

- The SAP GUI for Windows
- The SAP GUI for HTML
- The SAP GUI for Java

Certain other options to access SAP systems are not covered here: portal interfaces, such as iViews, Business Explorer (BEx) to access SAP BI systems, and more.

The SAP GUI for HTML requires the integrated Internet Transaction Server (ITS) to provide access to an SAP system. As of SAP Web Application Server 6.40, the integrated ITS is part of the SAP Netweaver AS and is installed automatically. The activation and publishing of the SAP GUI for HTML is **not** part of this course.

One common aspect of the SAP GUI for Windows and the SAP GUI for Java is that both GUIs use the DIAG protocol to communicate with SAP ERP Central Component (SAP ECC) (more specifically, with one instance of an SAP system). This protocol requires a very small bandwidth, reducing network load.

You will find more SAP GUI-related information on the SAP Service Marketplace (<http://service.sap.com/ui>).

Manual Installation of SAP GUI for Windows

Installation files for SAP GUI for Windows are located on the presentation DVD. Navigate to *PRES1\GUI\WINDOWS\WIN32* and start the installation by choosing *SetupALL.exe*.

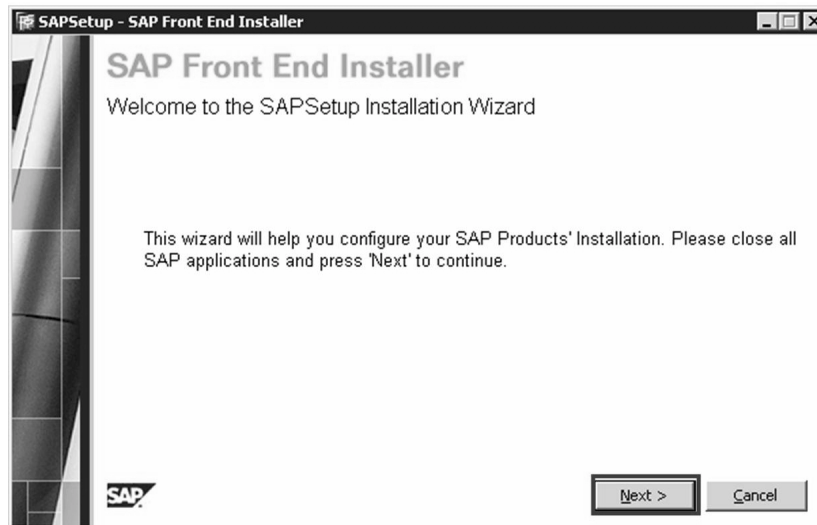


Figure 61: Manual Installation of SAP GUI for Windows (1/3)

On the *Welcome* screen, select *Next*.



Select front-end components to be installed

Figure 62: Manual Installation of SAP GUI for Windows (2/3)

In the next screen select the components to be installed and choose *Next*.

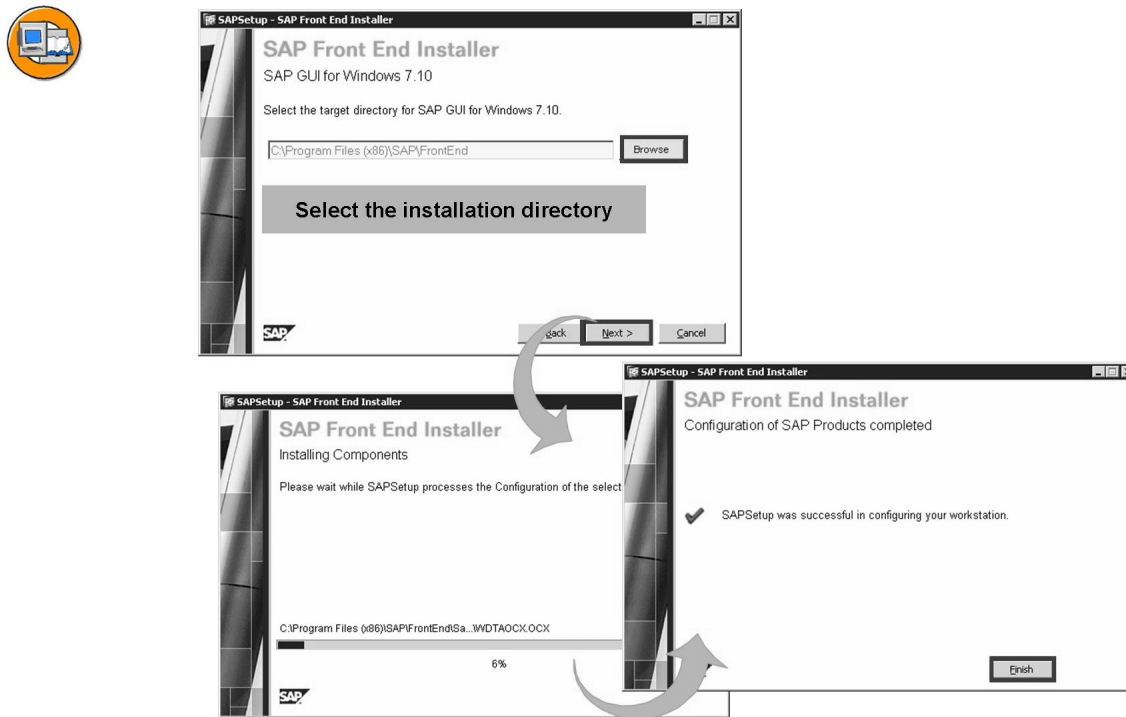


Figure 63: Manual Installation of SAP GUI for Windows (3/3)

Select the installation directory for the local installation of the SAP GUI.

After you choose *Next* the installation starts. On the last screen choose *Finish*.

Manually Patching SAP GUI for Windows

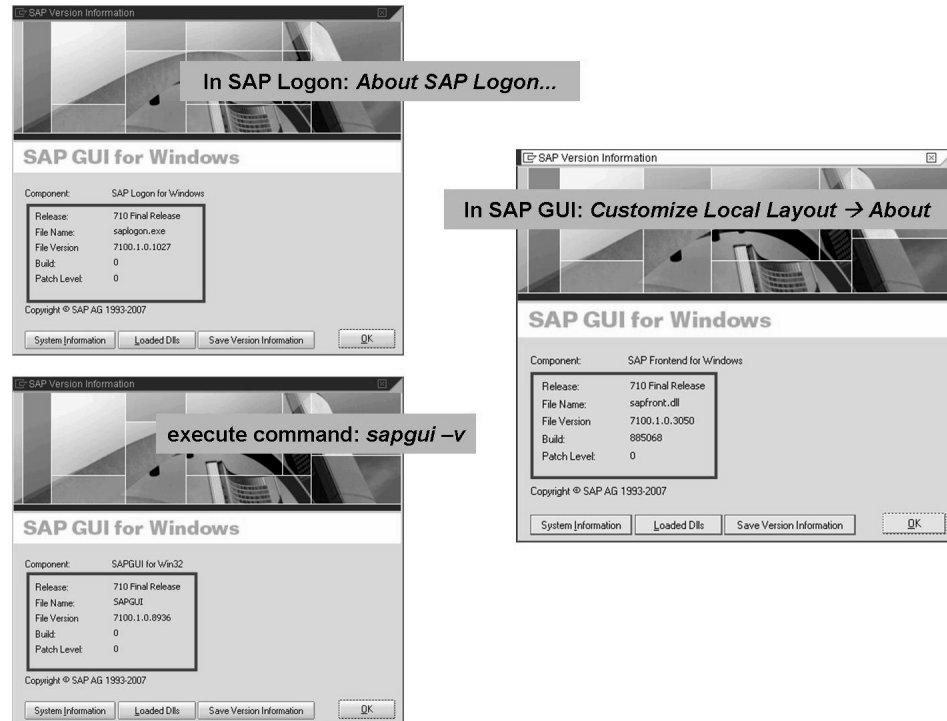


Figure 64: Patching SAP GUI for Windows (1/4)

In the screenshots you can see the versions for primary SAP GUI components: SAPLogon.exe, SAPGUI.exe, and Front.exe.

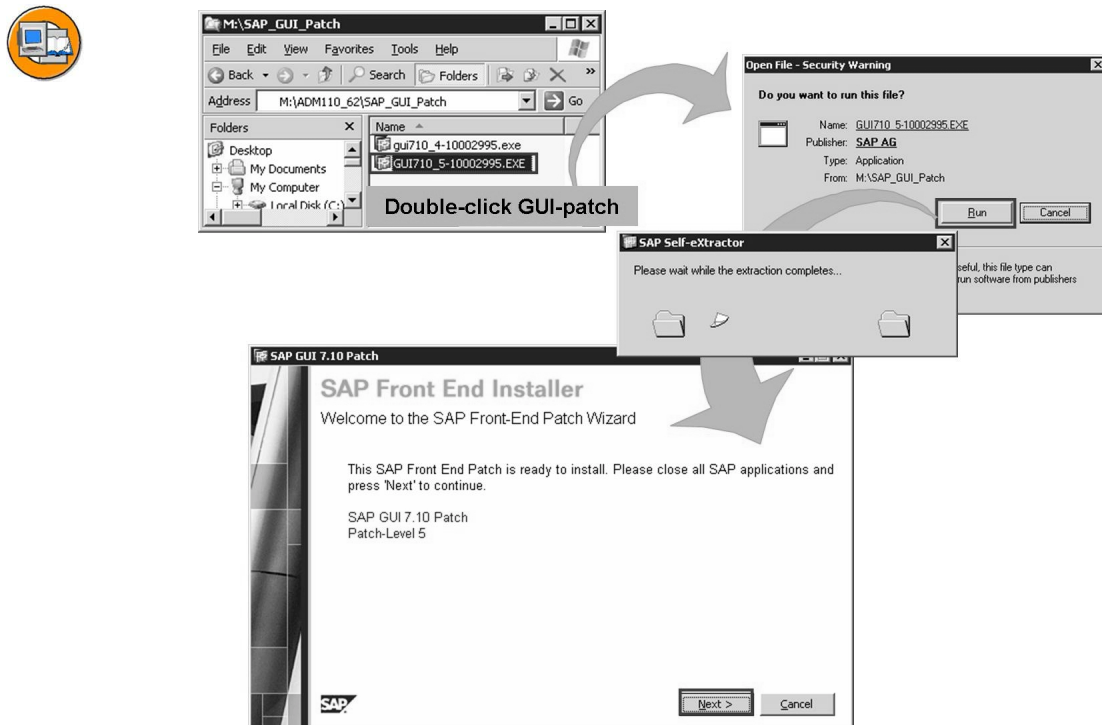


Figure 65: Patching SAP GUI for Windows (2/4)

Start the GUI patch by executing *GUI710_5-10002995.EXE* found in the directory *M:\ADM110_62\SAPGui_Patch*.

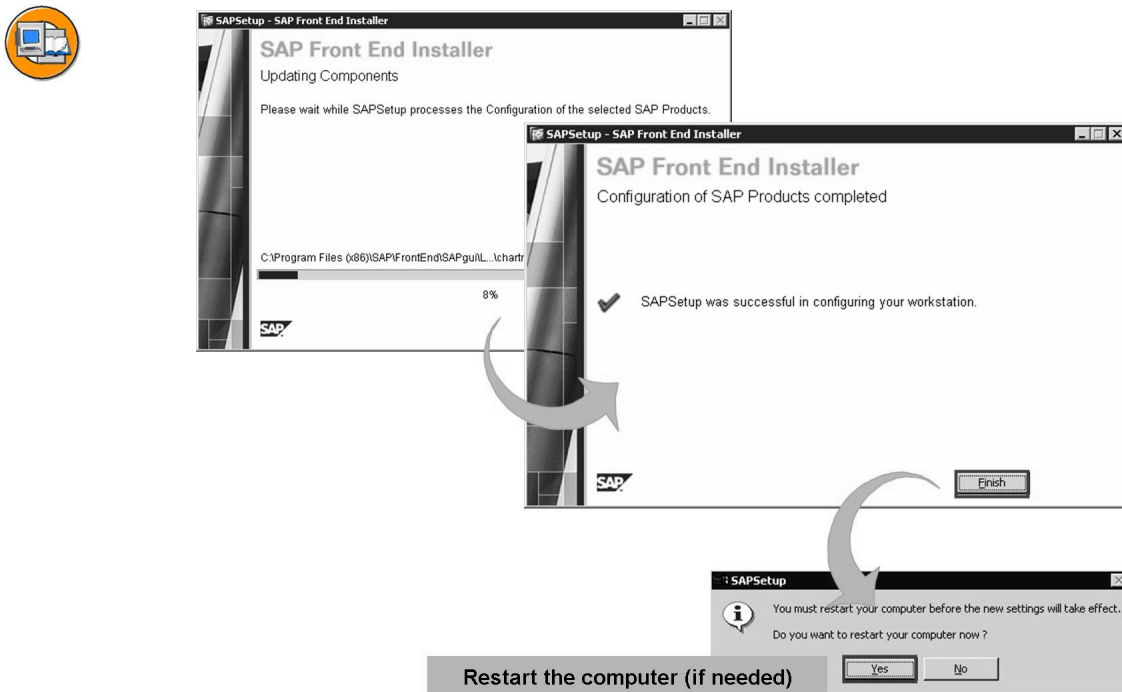


Figure 66: Patching SAP GUI for Windows (3/4)

After applying the patch, you sometimes have to restart your front-end computer because some essential DLLs were exchanged.

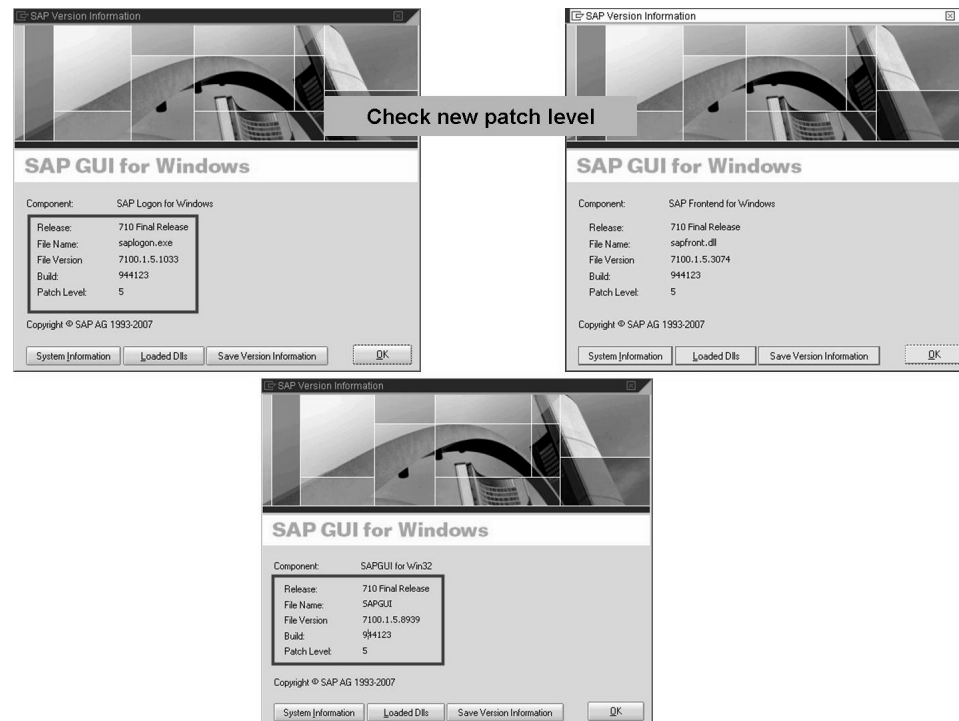


Figure 67: Patching SAP GUI for Windows (4/4)

After the patch is applied, the new patch level of the components shown in the figure is SAP GUI 7.10 Final Release patch level 5.

Steps to Install SAP GUI for Java

The SAP GUI for Java requires that a Java Runtime Environment (JRE) is installed. For more information on the Java JRE version, please read the documentation shipped with the SAP GUI for Java.

For this class we need to install the 32bit version of the JRE 5.0. Double click on *jre-1_5_0_14-windows-i586-p.exe* in folder *M:\ADM110_62\JRE_5* and do a typical installation.

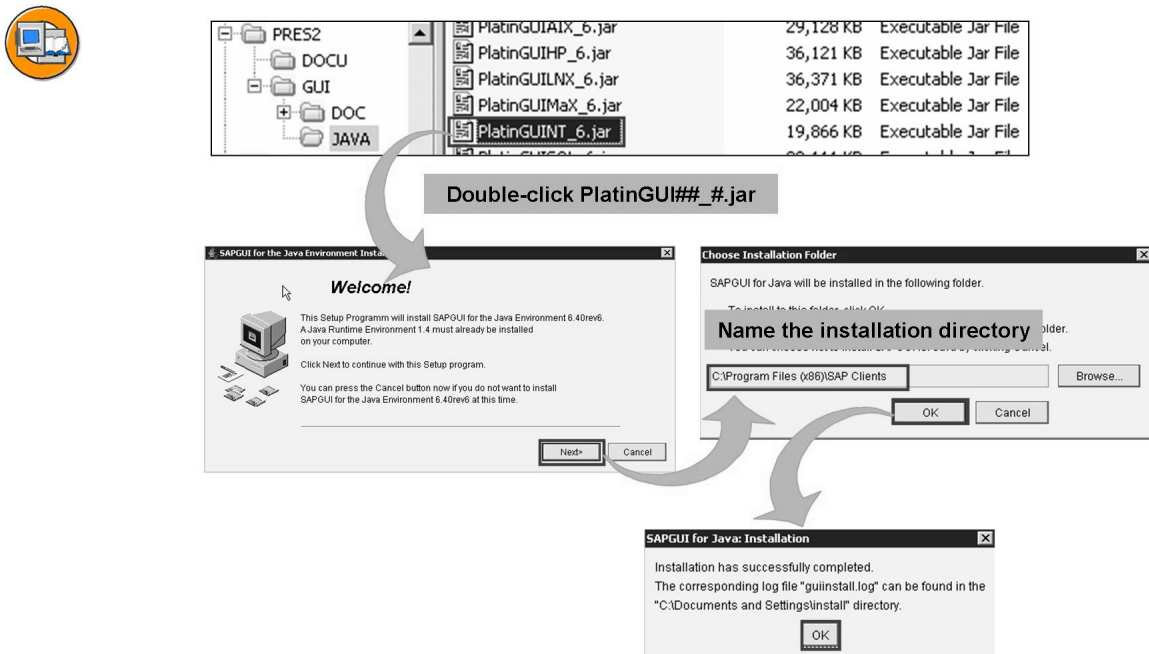


Figure 68: Installing SAP GUI for Java

Installation files for SAP GUI for Java are located on the presentation DVD. Navigate to *PRES2\GUI\JAVA* and start the installation by choosing the appropriate *PlatinGUI<platform>_<version>.jar* file (e.g. for Windows *PlatinGUINT_2.jar*).

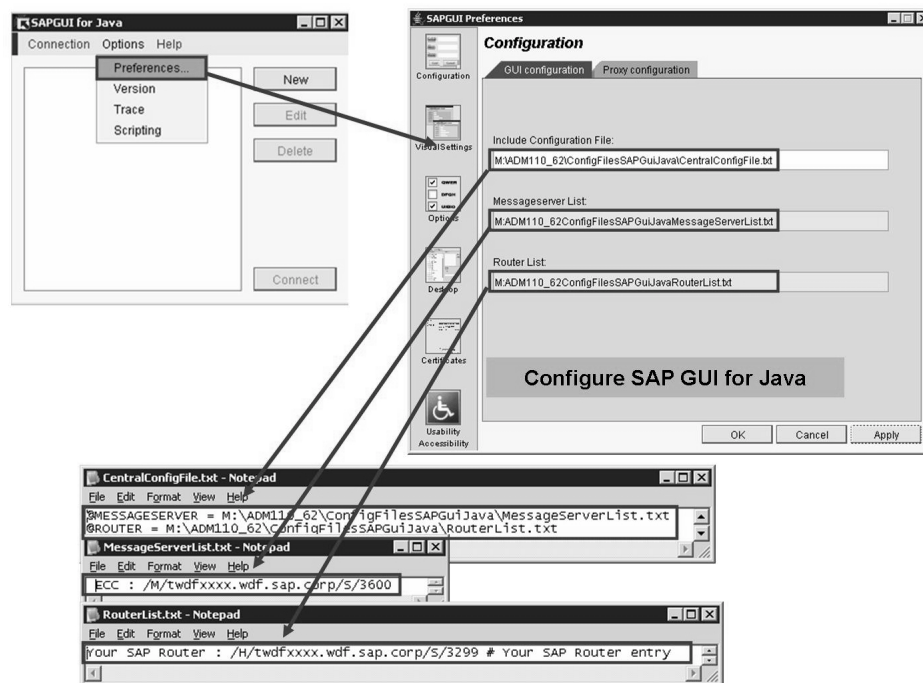


Figure 69: Configuration of SAP GUI for Java

You can find the configuration details of the SAP GUI for Java in the documentation. The documentation is available on the presentation DVD and also installed together with the SAP GUI for Java. To access the documentation choose *Help* → *Help Contents* in the SAP GUI for Java window.

To obtain information about the version of the SAP GUI for Java in use, select the question mark (?) icon in the upper-right corner of the GUI.

In addition to the manual installation, SAP GUI for Java supports on demand and silent installation. For more information see section *Installation* from the documentation of SAP GUI for Java.

Exercise 4: Installing SAP GUI for Windows and Java

Exercise Objectives

After completing this exercise, you will be able to:

- Manually install SAP GUI for Windows
- Manually patch SAP GUI for Windows
- Manually install SAP GUI for Java

Business Example

As the system administrator of ABC, which is a petrochemical company, you have to install the latest version of SAP ERP Central Component. You need to install the SAP GUI on end-user computers. You also need to update the SAP GUI with the latest patch.

Task 1: Installing SAP GUI for Windows

Manually install SAP GUI for Windows on the host you are using for the this class, such as twdfxxxx.

1. Start *SetupALL.exe* from folder *PRES1\GUI\WINDOWS\WIN32* on the presentation DVD. Use the default installation directory.
2. Choose some SAP GUI components of your choice to be installed. The components should contain at least *SAP GUI* with *SAP Logon*. Finish the installation.

Task 2: Patching SAP GUI for Windows

Raise the patch level of your freshly installed SAP GUI for Windows.

1. Check the current patch level of your SAP GUI components.
2. Patch the SAP GUI for Windows you installed in task 1 of this exercise. You find the patch to be applied in folder *ADM110_62\SAP_GUI_Patch* on the training share.
3. Check the new patch level of your SAP GUI components.

Continued on next page

Task 3: OPTIONAL: Installing SAP GUI for Java

Install SAP GUI for Java on the host you are using for this class, such as twdfxxxx.

1. Install the right JRE for SAP GUI for Java. You find the installation file in folder `\ADM110_62\JRE_5` of the training share.
2. Install SAP GUI for the Java environment. You find the installation files in folder `\PRES2\GUI\JAVA` on the presentation DVD.

Proceed as described in the training material.

Solution 4: Installing SAP GUI for Windows and Java

Task 1: Installing SAP GUI for Windows

Manually install SAP GUI for Windows on the host you are using for the this class, such as twdfxxxx.

1. Start *SetupALL.exe* from folder *PRESI\GUI\WINDOWS\WIN32* on the presentation DVD. Use the default installation directory.
 - a) Follow the step description. See figures *Local Installation of the SAP GUI for Windows 1-3* of lesson *Installation of SAP GUI for Windows and Java* for details.
2. Choose some SAP GUI components of your choice to be installed. The components should contain at least *SAP GUI* with *SAP Logon*. Finish the installation.
 - a) Follow the step description. See figures *Local Installation of the SAP GUI for Windows 1-3* of lesson *Installation of SAP GUI for Windows and Java* for details.

Task 2: Patching SAP GUI for Windows

Raise the patch level of your freshly installed SAP GUI for Windows.

1. Check the current patch level of your SAP GUI components.
 - a) Follow the step description. See figure *Patching SAP GUI (1/4)* of lesson *Installation of SAP GUI for Windows and Java* for details.
2. Patch the SAP GUI for Windows you installed in task 1 of this exercise. You find the patch to be applied in folder *ADM110_62\SAP_GUI_Patch* on the training share.
 - a) Follow the step description. See figures *Patching SAP GUI 2-3* of lesson *Installation of SAP GUI for Windows and Java* for details.
3. Check the new patch level of your SAP GUI components.
 - a) Follow the step description. See figure *Patching SAP GUI (4/4)* of lesson *Installation of SAP GUI for Windows and Java* for details.

Continued on next page

Task 3: OPTIONAL: Installing SAP GUI for Java

Install SAP GUI for Java on the host you are using for this class, such as twdfxxxx.

1. Install the right JRE for SAP GUI for Java. You find the installation file in folder `\ADM110_62\JRE_5` of the training share.
 - a) Follow the step description. See section *Steps to Install the SAP GUI for Java* of lesson *Installation of SAP GUI for Windows and Java* for details.
2. Install SAP GUI for the Java environment. You find the installation files in folder `\PRES2\GUI\JAVA` on the presentation DVD.

Proceed as described in the training material.

- a) Follow the step description. See figure *Installing the SAP GUI for Java* of lesson *Installation of SAP GUI for Windows and Java* for details.



Lesson Summary

You should now be able to:

- Describe the different types of SAP GUI
- Install the SAP GUI for Java
- Perform a local SAP GUI for Windows installation
- Patch a local SAP GUI for Windows

Lesson: Installation and Usage of SAP GUI Installation Server

Lesson Overview

This lesson explains how to install and use SAP GUI Installation Server (for Windows). SAP GUI Installation Server will be installed during this lesson.



Lesson Objectives

After completing this lesson, you will be able to:

- Perform a SAP GUI Installation Server installation
- Create a SAP GUI Installation package
- Perform an unattended SAP GUI installation using the SAP GUI Installation Server

Business Example

ABC Limited is a petrochemical company that uses SAP to manage its data. The company now wants to install the latest version of SAP ERP Central Component (SAP ECC), to use the functions delivered with the extension set of SAP ERP Central Component. As the system administrator of ABC, you need to install SAP GUI on all end-user computers. All your end-user computers are Windows based frondends. You want to use an automatism to install the frontend software SAP GUI for Windows on all end-user computers. This can be done by the SAP GUI Installation Server.

Installing the SAP GUI Installation Server

When installing SAP GUI for Windows on several workstations, it is recommended to use a SAP GUI Installation Server. The server-based installation is flexible and makes maintenance easier, for example, when patches have to be applied.

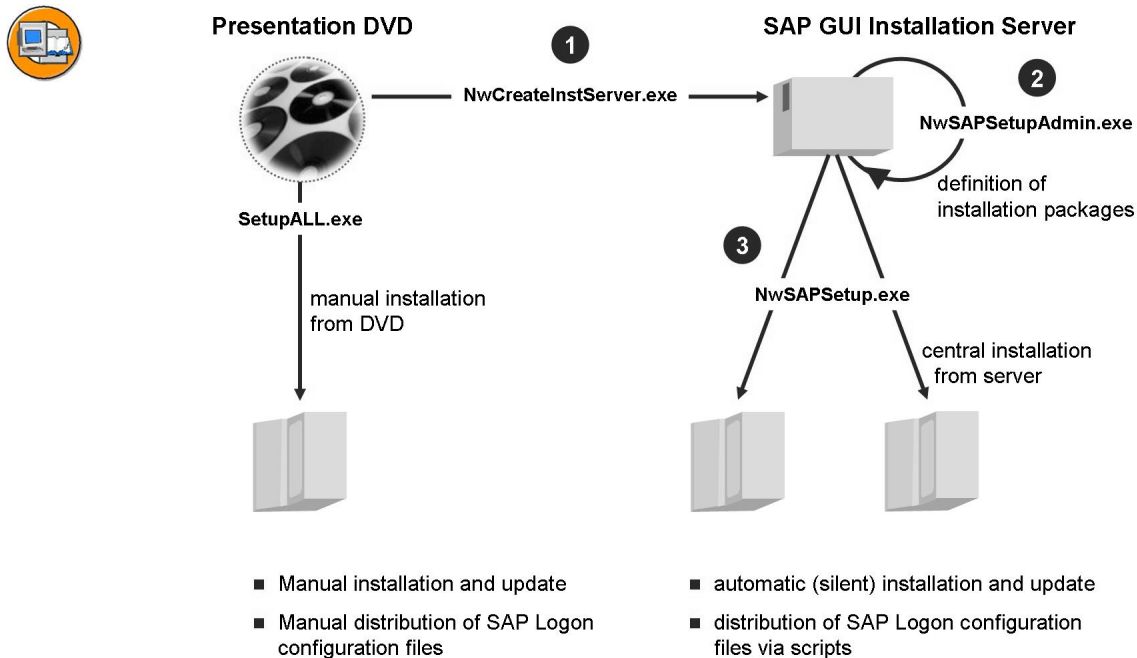


Figure 70: SAP GUI Server Installation and Configuration

The manual installation and update of SAP GUI for Windows in every frontend is very time-consuming. Using the SAP GUI installation server you can save time during the installation and update procedure. SAP delivers all necessary installation and configuration files. They can be found on the presentation DVD.

The following screenshots explain how to setup a SAP GUI Installation Server. It is recommended that you read the instructions in the Installation Guide SAP Front End, which can be found on the Presentation DVD *PRES1\DOCU\SAP_Front_End_Installation_Guide.pdf*, before starting the installation.

Follow these steps to install the SAP GUI Installation server

On the presentation DVD, start *NwCreateInstServer.exe* in *PRES1\GUI\WINDOWS\WIN32G\setup* directory.

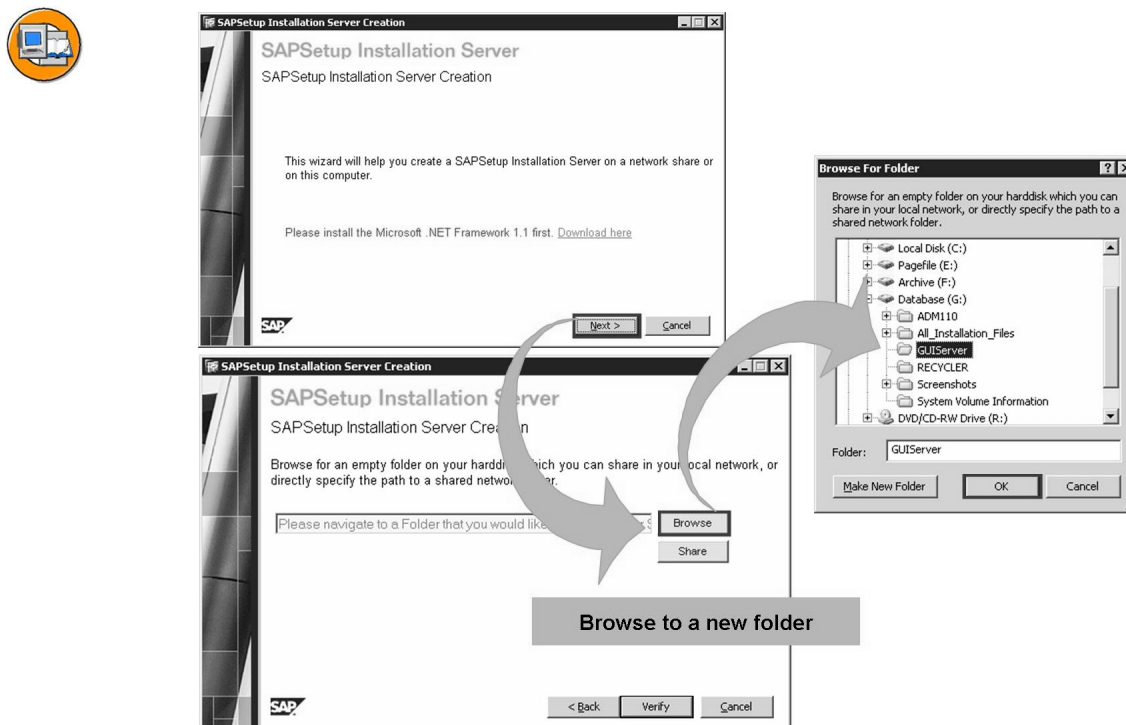


Figure 71: Installing an SAP GUI Installation Server (1/4)

Note that a prerequisite for using the installation server is the installation of Microsoft .NET Framework 1.1 SP1. Any other version of .NET framework is not supported. See also SAP note 1057666 - *NW SAPSetup - List of Bugfixes*.

Browse to a folder to which you want to install the installation server. You can create a new folder during this process.

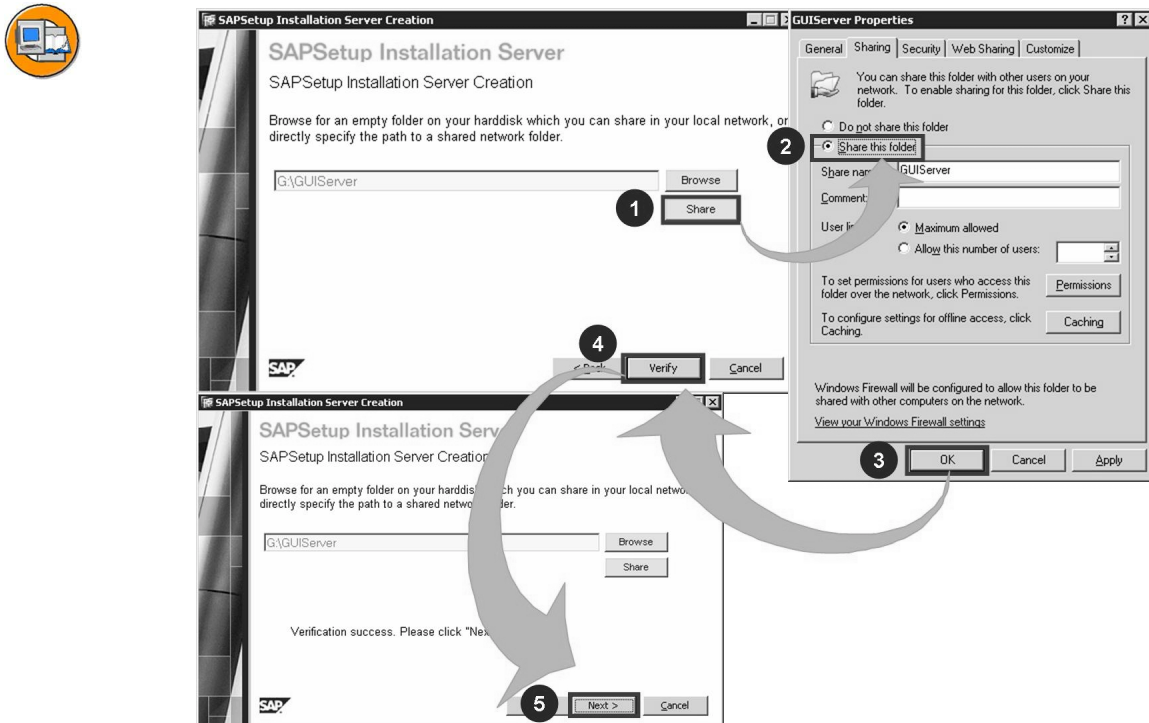


Figure 72: Installing an SAP GUI Installation Server (2/4)

Share the installation folder and verify it before executing the next step.

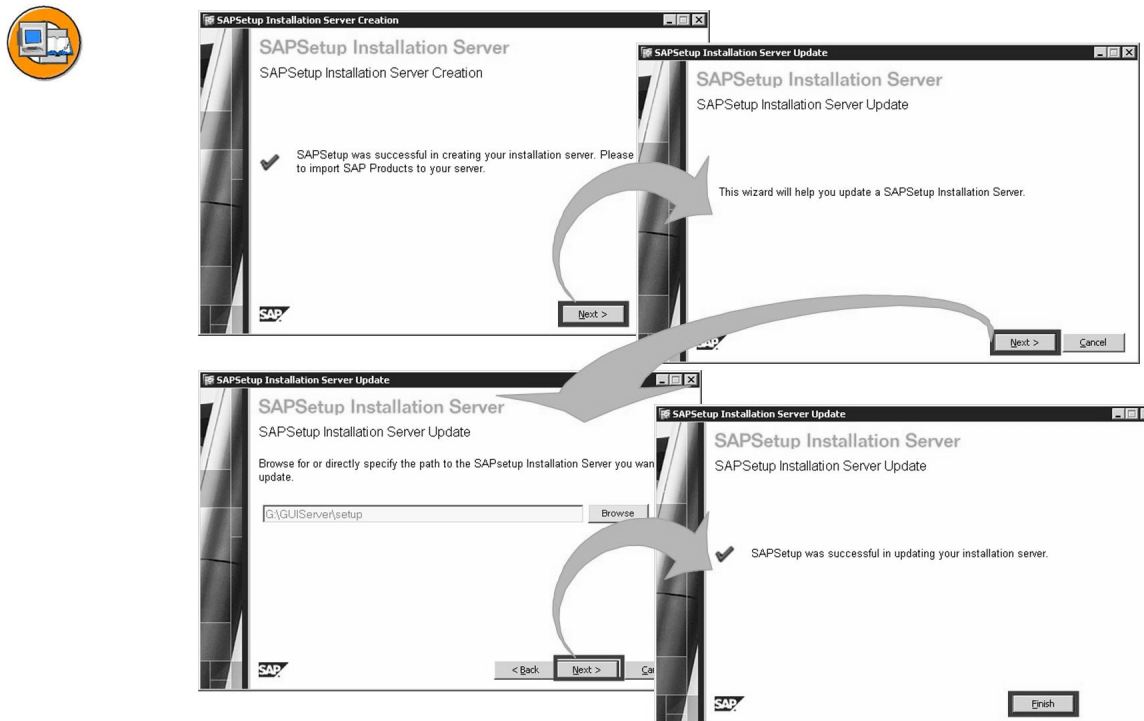


Figure 73: Installing an SAP GUI Installation Server (3/4)

Now all files will be put into the shared folder. After the installation finished, you can work from the share. The DVD is not needed any more.

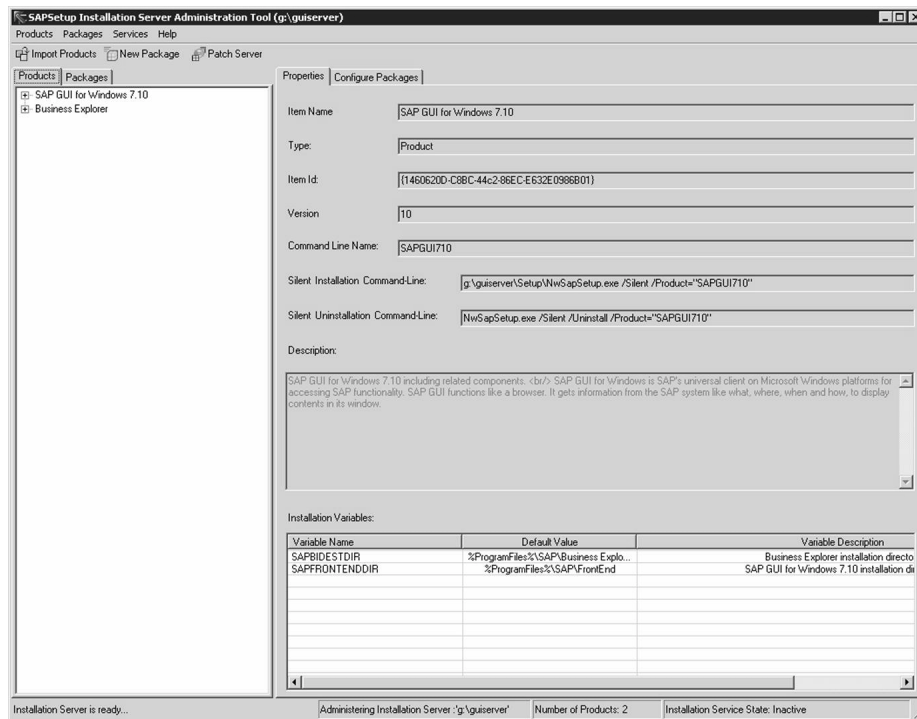


Figure 74: Installing an SAP GUI Installation Server (4/4)

Directly after the installation the administration tool (*NwSapSetupAdmin.exe*) opens up and you can begin your work.

Patching the SAP GUI Installation Server

After the SAP GUI Installation Server has been installed, it should be patched using the standard SAP GUI patches found on the SAP Service Marketplace (<http://service.sap.com/patches>). The following figures will explain the patching of the SAP GUI Installation Server.

Start program *NwSapSetupAdmin.exe* located in the *setup* directory of your Installation Server folder.

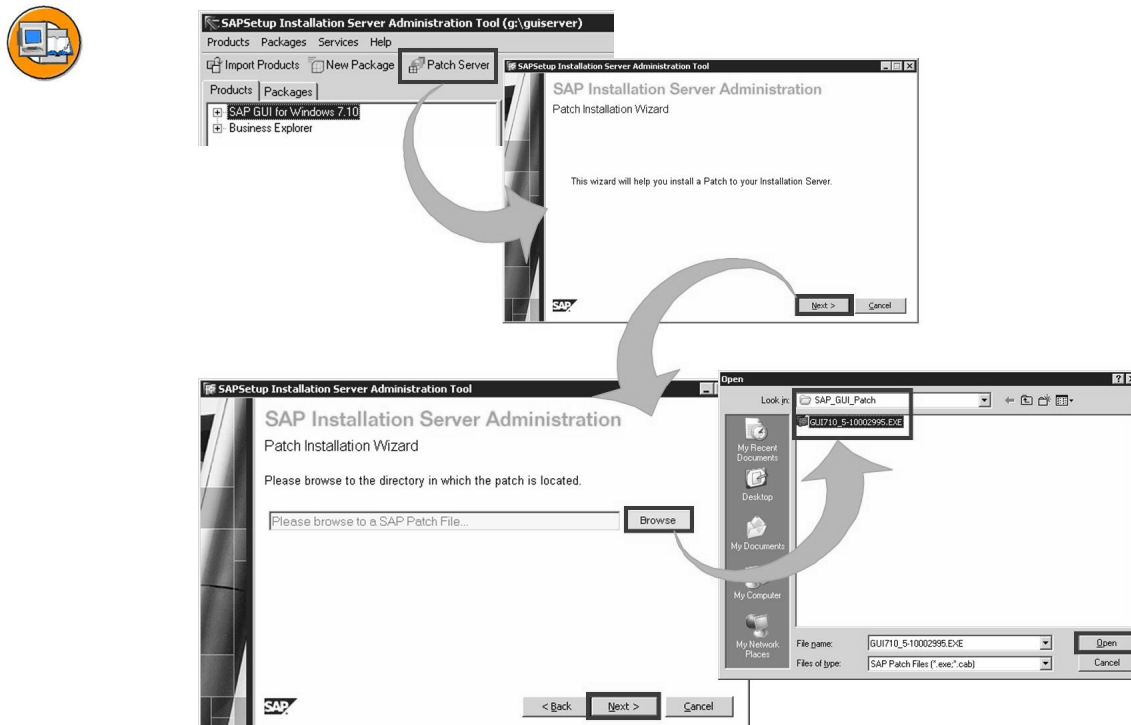


Figure 75: Patching the SAP GUI Installation Server (1/2)

Choose *Patch Server* and browse to the patch file.

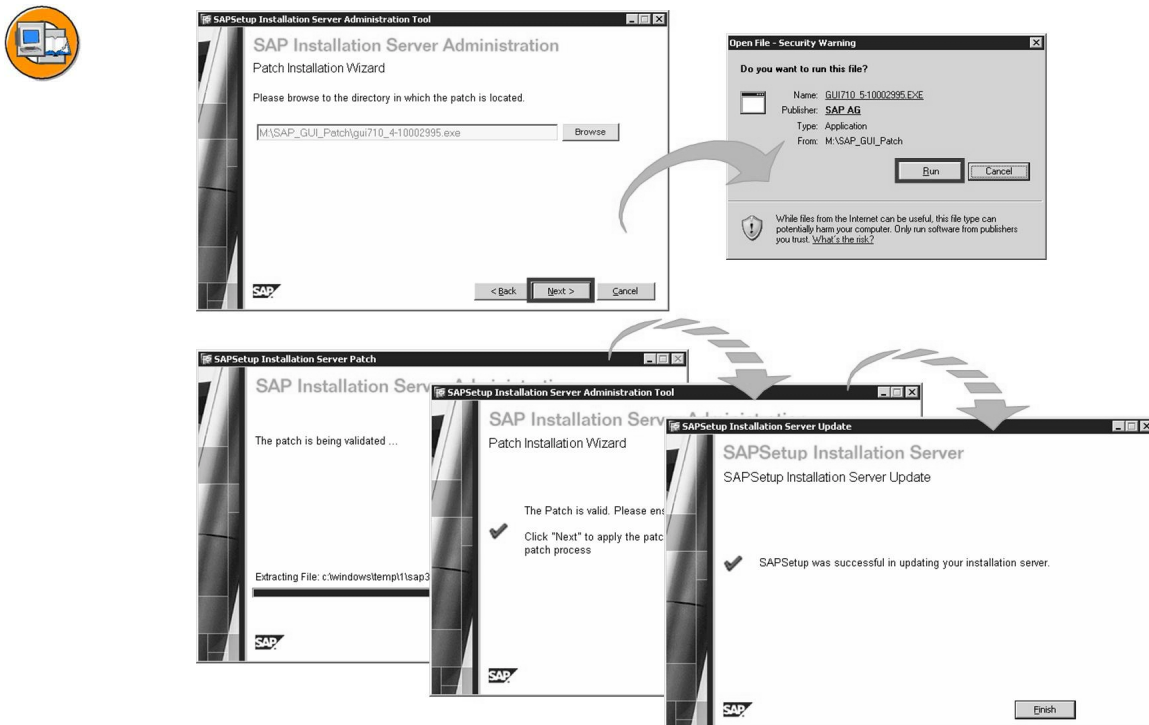


Figure 76: Patching the SAP GUI Installation Server (2/2)

Confirm all screens and wait until the patching is done. Afterwards the administration tool will open up and you can control the patch level.

When you now install a SAP GUI Installation Package on a PC where SAP GUI is already installed, it will only install the patched files.

Creating a SAP GUI Installation Package

After installation and patching of the SAP GUI Installation Server, you can start to define new SAP GUI Installation packages. Afterwards these SAP GUI Installation Packages can be distributed to the workstations.

Use *NwSAPSetupAdmin.exe* to create new installation packages for the SAP GUI for Windows.

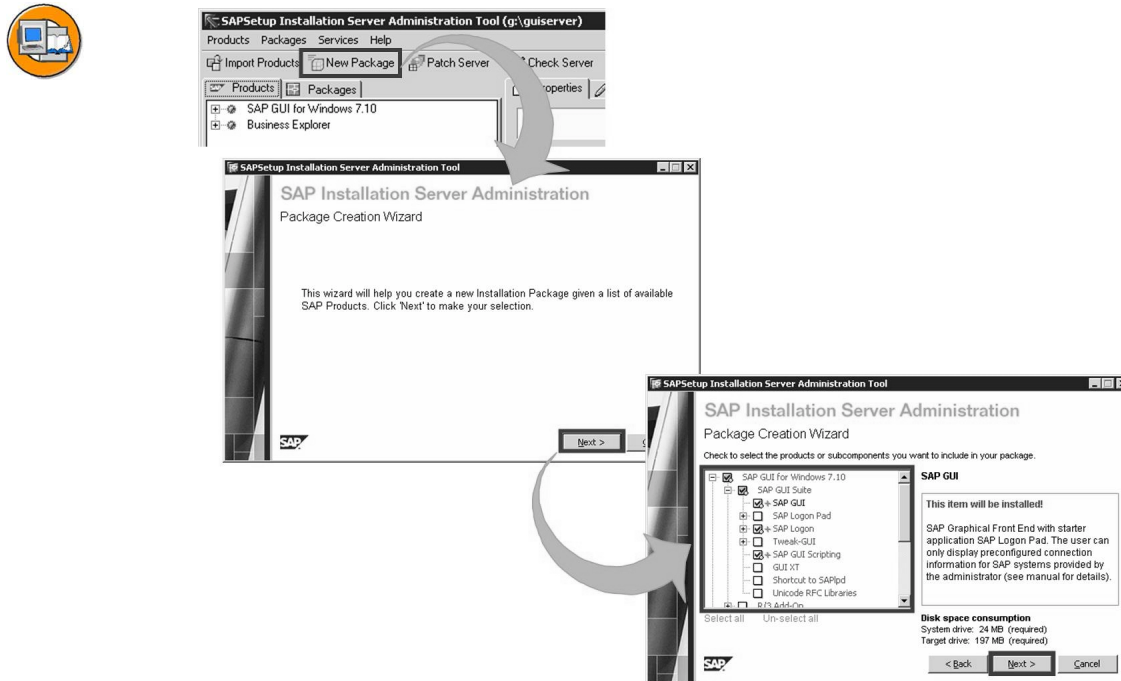


Figure 77: Creating an SAP GUI Installation Package (1/3)

Choose *New Package* and select the GUI components you would like to install with this package.

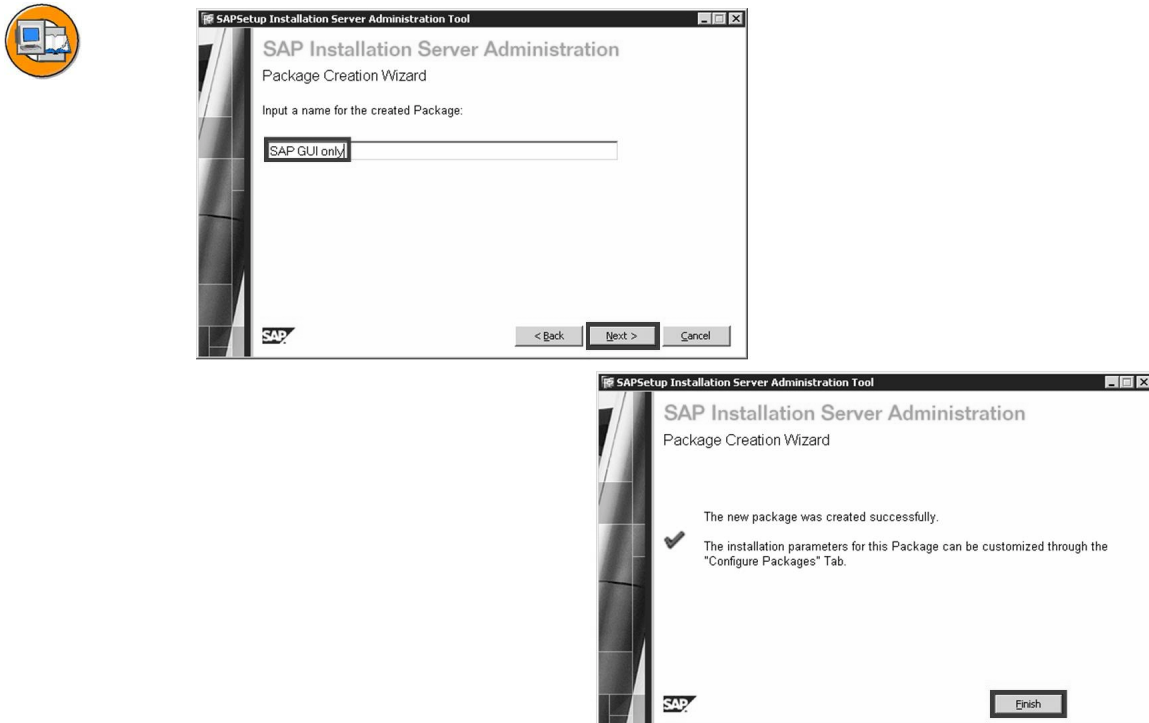


Figure 78: Creating an SAP GUI Installation Package (2/3)

Choose a name for your package.



SAPSetup Installation Server Administration Tool (g:\guiserver)

Products Packages Services Help

Import Products New Package Patch Server Check Server

Products Packages Properties Configure Packages Server History

SAP GUI only

Package 'SAP GUI only' Properties

Package ID: [E8C7AA57-0ED7-4A9D-87C4-8CCD09679668]

Version: [4]

Latest Patch Level: [-NA-]

Command Line Name: [SAP GUI only]

Silent Installation Command-Line: [g:\guiserver\Setup\NwSapSetup.exe /Silent /Package="SAP GUI only"]

Silent Uninstallation Command-Line: [NwSapSetup.exe /Silent /Uninstall /Package="SAP GUI only"]

Description: [Display](#)

Installation Variables:

Variable Name	Default Value	Variable Description
SAPBIDESTDIR	%ProgramFiles%\SAP\Business Explorer	Business Explorer installation directory
SAPFRONTENDDIR	%ProgramFiles%\SAP\FrontEnd	SAP GUI for Windows 7.10 installation directory
SETSAPWORKDIR	%USERPROFILE%\%SapWorkDir	SAP GUI for Windows 7.10 work directory

SapAdmin has refreshed its state successfully. Ready for use... Administering Installation Server: 'g:\guiserver' Number of Products: 2 Installation Service State: Inactive

Figure 79: Creating an SAP GUI Installation Package (3/3)

You can now install the package on the frontends by executing a script, for example when the user logs on to his workstation. The content of the package can be changed later on.

Installing an SAP GUI Installation Package

The just created SAP GUI Installation Package can now be used to perform an unattended installation.



```

C:\ Command Prompt
Microsoft Windows [Version 5.2.3790]
(C) Copyright 1985-2003 Microsoft Corp.
C:\>\\host\GUIServer\Setup\NwSAPSetup.exe /Silent /Package="SAP GUI only"
  
```

```

C:\ Command Prompt
Microsoft Windows [Version 5.2.3790]
(C) Copyright 1985-2003 Microsoft Corp.
C:\>\\host\GUIServer\Setup\NwSAPSetup.exe /Package="SAP GUI only"
  
```

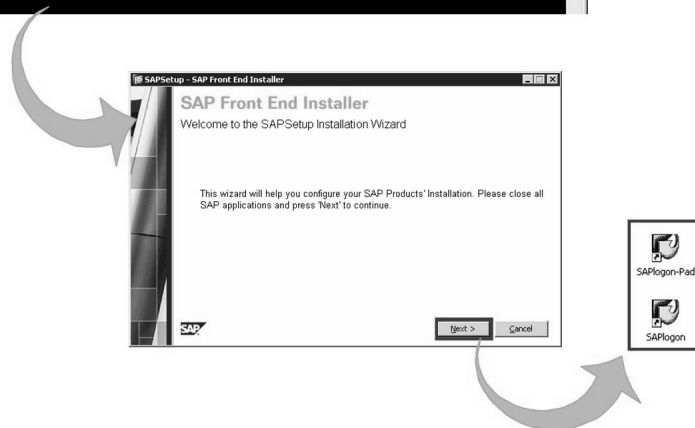


Figure 80: Installing an SAP GUI Installation Package

You can start the unattended installation of a SAP GUI Installation Package by running the following command:

```
\\<server>\<shared folder>\Setup\NwSAPSetup.exe /Silent /Package="<package name>"
```

for example, `\\twdfXXXX\GUIServer\Setup\NwSAPSetup.exe /Silent /Package="SAP GUI only"`

You can carry out unattended installations and automatic patch deployment on the client. To do this, place the appropriate *NwSAPSetup.exe* command line in the logon script of the client. The logon script is a program that is executed when you log on to your workstation.

See the *Help* of the Installation Server to get detail information on the possible command lines.

There is also the possibility to provide an Distribution Service which makes it possible to do frontend installations without having administrative rights. See *Configuring Local Security Handling* in the documentation of the Installation Server for more information.

Exercise 5: OPTIONAL: Installing SAP GUI from SAP GUI Installation Server

Exercise Objectives

After completing this exercise, you will be able to:

- Install SAP GUI from SAP GUI Installation Server

Business Example

You are the system administrator of ABC, a petrochemical company. You have been given the task of installing the latest version of SAP ERP Central Component (SAP ECC). You need to install the SAP GUI for end users.

Task: Installing SAP GUI for Windows from the Installation Server

Install SAP GUI for Windows from SAP GUI Installation Server. Don't start a manual installation. Use the SAP GUI installation package defined by your trainer and start the SAP GUI installation on the server you are using for the training, such as twdfxxxx. Start the SAP Logon on your training server.

1. Start the installation of SAP GUI for Windows from the installation server of your trainer and use the installation package defined by your trainer. The installation should be performed on your training server twdfxxxx.
2. Start SAP Logon on your training server.

Solution 5: OPTIONAL: Installing SAP GUI from SAP GUI Installation Server

Task: Installing SAP GUI for Windows from the Installation Server

Install SAP GUI for Windows from SAP GUI Installation Server. Don't start a manual installation. Use the SAP GUI installation package defined by your trainer and start the SAP GUI installation on the server you are using for the training, such as twdfxxxx. Start the SAP Logon on your training server.

1. Start the installation of SAP GUI for Windows from the installation server of your trainer and use the installation package defined by your trainer. The installation should be performed on your training server twdfxxxx.
 - a) Logon to operating system of your training server.
 - b) Navigate to *Start* → *Run* and enter \\<server>\<shared folder>\Setup\NwSAPSetup.exe /package="<package name>", for example, \\twdfXXXX\GUIServer\Setup\NwSAPSetup.exe /package="SAP GUI only". Your instructor will provide you with the appropriate information.
2. Start SAP Logon on your training server.
 - a) Use the SAP Logon icon on your desktop to start SAP Logon.



Lesson Summary

You should now be able to:

- Perform a SAP GUI Installation Server installation
- Create a SAP GUI Installation package
- Perform an unattended SAP GUI installation using the SAP GUI Installation Server



Unit Summary

You should now be able to:

- Describe the different types of SAP GUI
- Install the SAP GUI for Java
- Perform a local SAP GUI for Windows installation
- Patch a local SAP GUI for Windows
- Perform a SAP GUI Installation Server installation
- Create a SAP GUI Installation package
- Perform an unattended SAP GUI installation using the SAP GUI Installation Server

Related Information

- SAP Service Marketplace, <http://service.sap.com/patches> and <http://service.sap.com/ui>
- Presentation DVD, folder \PRES1\DOCU
- SAP notes as listed in this unit



Test Your Knowledge

1. Which of the following is not a classical GUI variant to access the SAP system?

Choose the correct answer(s).

- ☐ A Business Explorer
- ☐ B SAP GUI for Windows
- ☐ C SAP GUI for HTML
- ☐ D SAP GUI for Java

2. The SAP GUI installation server can be used to install all types of SAP GUI (SAP GUI for Windows, SAP GUI for Java, SAP GUI for HTML).

Determine whether this statement is true or false.

- ☐ True
- ☐ False



Answers

1. Which of the following is not a classical GUI variant to access the SAP system?

Answer: A

You use Business Explorer (BEx) to access SAP NetWeaver BI systems.

2. The SAP GUI installation server can be used to install all types of SAP GUI (SAP GUI for Windows, SAP GUI for Java, SAP GUI for HTML).

Answer: False

The SAP GUI installation server can only trigger the installation and update of SAP GUI for Windows.

Unit 5

Installing Components of SAP ERP

Unit Overview

This unit first gives an introduction to the installation tool SAPinst. SAPinst then will be used to install an SAP ECC system. Afterwards an SAP NetWeaver Portal system is installed.



Unit Objectives

After completing this unit, you will be able to:

- Start and use SAPinst
- Name the log files used by SAPinst
- install an SAP ECC 6.0 system
- install an SAP NetWeaver Portal

Unit Contents

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Lesson: Installation of SAP ECC	158
Exercise 6: Install an SAP ECC 6.0 System	175
Lesson: Installation of SAP NetWeaver Portal	178
Exercise 7: Install an SAP NetWeaver Portal System	189

Lesson: Introducing SAPinst

Lesson Overview

This lesson describes how to use SAPinst.



Lesson Objectives

After completing this lesson, you will be able to:

- Start and use SAPinst
- Name the log files used by SAPinst

Business Example

ABC Limited, a petrochemical company, uses SAP to manage its data. The company plans to install the latest version of SAP ERP, to use the functions delivered with the extension set of SAP ERP Central Component. As the system administrator of ABC, you would like to know some more details on SAPinst.

Overview of SAPinst

SAPinst includes a SAPinst GUI and a GUI server, which both use a Java Runtime Environment.

In a standard installation SAPinst, SAPinst GUI, and the GUI server are running on the same host. If required, you can instead perform a remote installation with SAPinst, where SAPinst GUI is running on a separate host from SAPinst and the GUI server.

When you start SAPinst, SAPinst GUI and the GUI server also start. SAPinst GUI connects to the GUI server with a secure SSL connection, and the GUI server connects to SAPinst.

Starting SAPinst

The following procedure starts SAPinst for **Windows** on a single host:

1. Log on to your host as a user who is a member of the local administration group.
2. Start SAPinst from the installation master DVD. Double-click *sapinst.exe* from in the directory `<DVD drive>:\IM_WINDOWS_<platform>`

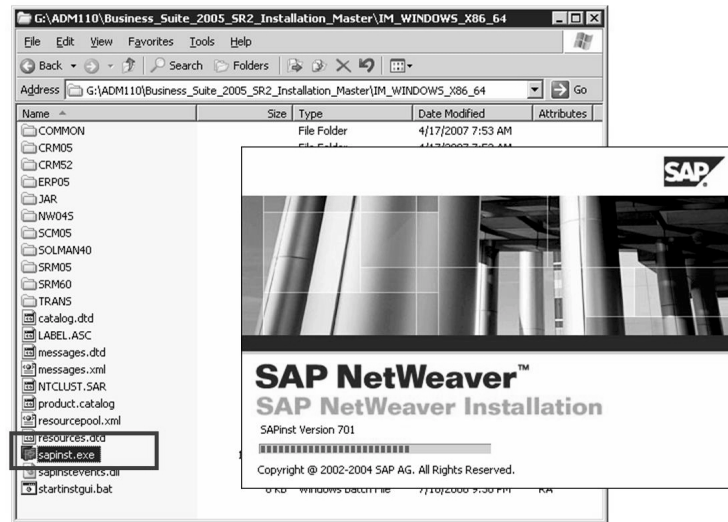


Figure 81: Start SAPinst on Windows

SAPinst normally creates the installation directory *sapinst_instdir*, where it keeps its log files, and which is located directly in the *Program Files* directory. If SAPinst is not able to create *sapinst_instdir* there, it tries to create *sapinst_instdir* in the directory defined by the environment variable *TEMP*. SAPinst creates a subdirectory for each installation service.



Note: We recommend that you keep all installation directories until the system is completely and correctly installed.

The SAPinst Self-Extractor extracts the executables to a temporary directory (*TEMP*, *TMP*, *TMPDIR*, or *SystemRoot*). These executables are deleted after SAPinst has stopped running. Directories called *sapinst_exe.xxxxxx.xxxx* sometimes remain in the temporary directory. You can safely delete them. The temporary directory also contains the SAPinst Self-Extractor log file *dev_selfex.out*, which might be useful if an error occurs.



Hint: If SAPinst cannot find a temporary directory, the installation terminates with the error FCO-00058.

If you want to terminate SAPinst and the SAPinst Self-Extractor, choose one of the following options:

- Right-click the icon for the SAPinst output window located in the Windows tray and choose Exit.
- Click the icon for the SAPinst output window located in the Windows tray and choose *File* → *Exit*.

On **UNIX** you start SAPinst in the following way:

1. Log on to your host as user *root*.
2. Start SAPinst from the installation master DVD with the command *./sapinst*.



Caution: Make sure that the root user has not set any environment variables for a different SAP system or database.

SAPinst normally creates the installation directory *sapinst_instdir* directly below the temporary directory. SAPinst finds the temporary directory by checking the value of the environment variables *TEMP*, *TMP*, or *TMPDIR*. If no value is set for these variables, SAPinst uses */tmp* as default installation directory. Make sure that the temporary directory has the permissions *777*.

The SAPinst Self-Extractor extracts the SAPinst executables to the temporary directory. These executables are deleted again after SAPinst has stopped running. If required, you can terminate SAPinst and the SAPinst Self-Extractor by pressing *CTRL+C*. The temporary directory also contains the SAPinst Self-Extractor log file *dev_selfex.out*, which might be useful if an error occurs.



Caution: Make sure that your operating system does not delete the contents of the temporary directory */tmp* or the contents of the directories to which the variables *TEMP*, *TMP*, or *TMPDIR* point, for example by using a crontab entry.



Hint: If SAPinst cannot find a temporary directory, the installation terminates with the error FCO-00058.

During the installation, the default ports 21200 and 21212 are used for communication between SAPinst, GUI server, and SAPinst GUI. SAPinst uses port 21200 to communicate with the GUI server. The GUI server uses port 21212 to communicate with SAPinst GUI. You get an error message if one of these ports is already in use by another service. In this case start sapinst with the following command line parameters:
SAPINST_DIALOG_PORT=<free_port_number_sapinst_gui_to_gui_server>
GUISERVER_DIALOG_PORT=<free_port_number_gui_server_to_sapinst_gui>

To get a list of all available SAPinst properties, start sapinst with the parameter *-p*:

Windows: *sapinst.exe -p*

UNIX: *./sapinst -p*

Remote Installation with SAPinst

SAPinst can also be used to perform a remote installation. This enables you to install an SAP system on another host (the remote host) while monitoring the installation with the SAPinst GUI on your local Windows or UNIX computer (the local host).



Figure 82: Remote Installation with SAPinst

Prerequisites to perform a remote installation with SAPinst are:

- Both computers are on the same network and can ping each other.
- SAPinst Server uses the ports 21200 and 21212 to communicate with SAPinst GUI. If one of these ports is used by another service, SAPinst gives an error message.

Start SAPinst using the following procedure:

1. Log on to your remote host
 - Windows: as a user who is a member of the local administration group.
 - UNIX: as root.
 2. Start SAPinst from the installation master DVD using the following command:
 - Windows: *sapinst.exe -nogui*
 - UNIX: *./sapinst -nogui*
 3. On your local host Start SAPinst GUI by executing the following command:
 - Windows: *startinstgui.bat -host <remote hostname>*
 - UNIX: *./startInstGui.sh -host <remote hostname>*
- . For this you need to have access to the installation master DVD from your local host.



Hint: For a list of options to start SAPinst GUI, change to the same directory as your SAPinst executable and enter the command *startinstgui.bat -h* on Windows and *./startInstGui.sh -h* on UNIX.

Troubleshooting with SAPinst

If an error occurs, SAPinst stops the installation and displays a dialog informing you about the error. In this case, you can view the log file by choosing *View Log*. If you can solve the error manually, you can do during leaving SAPinst opened. After you fixed the problem choose *Retry* to continue the installation.



Hint: There are some known error situations where you can choose *Retry* and SAPinst will continue without any error.

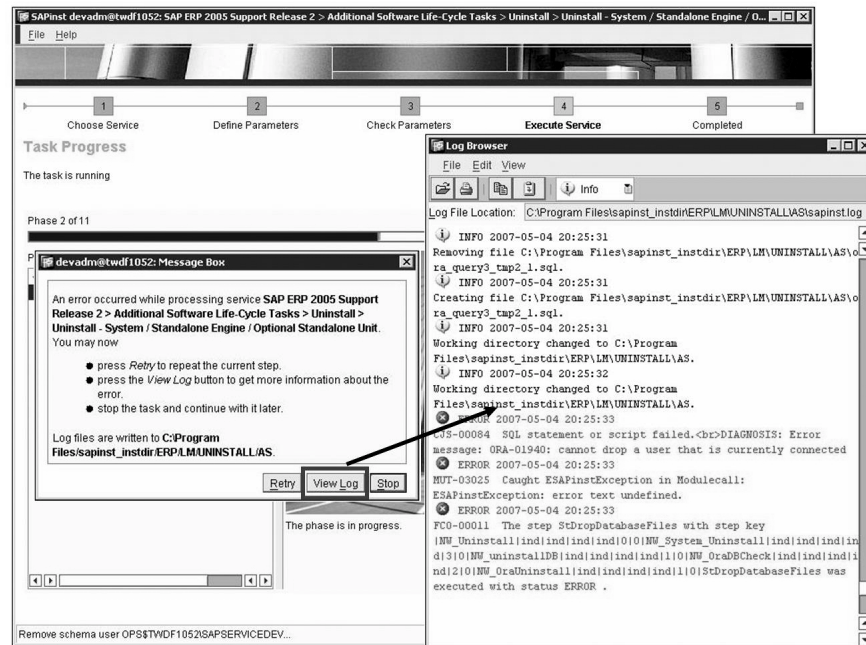


Figure 83: SAPinst Error Log: sapinst.log

All the installation information is logged in several log files. The main SAPinst output files contain the following information:



- *sapinst.log* - information on installation progress
- *sapinst_dev.log* - records all messages of every installation step in detail

The log files *sapinst.log* and *sapinst_dev.log* can be found in the current installation directory.

Additional log files might be written during the installation process. The additional logs are referenced in *sapinst.log* and *sapinst_dev.log*.

The logs of SAPinst GUI and the GUI Server are written to the folder

%userprofile%\stdgui (Windows)

<user_home>/stdgui (UNIX)

If SAPinst GUI does not start, check the file *stdstart.err* in the current *%userprofile%* (Windows) or *<user_home>* (UNIX) directory.

SAPinst - XML files

SAPinst is controlled by XML files. The main XML files are:

- `dialog.xml` - Contains all dialogs used in the installation
- `keydb.xml` - SAPinst records the installation progress and user input in the `keydb.xml` file
- `messages.xml` - Contains all messages used in the installation
- `control.xml` - Contains the component definition used by SAPinst
- `packages.xml` - For software package administration

SAPinst GUI Handling

When using the SAPinst GUI, the following functions are available on the different SAPinst GUI dialogs (input screens, installation progress screen, message boxes):

Function	Description
<i>F1</i>	Displays detailed information about each input parameter.
<i>Back</i>	Displays the previous dialog for editing.
<i>Next</i>	Displays the next dialog for editing.
<i>Exit</i>	<p>Cancels the installation with the following options:</p> <ul style="list-style-type: none"> • <i>Stop</i> Stops the installation without further changing the installation files. You can restart SAPinst to continue the installation later from this point.. • <i>Continue</i> Continues the installation.
<i>Log Off</i>	Stops the SAPinst GUI, but SAPinst and the GUI server continue running. You can later reconnect to the same SAPinst installation from the same or another host by starting SAPinst GUI separately.
<i>View Log</i>	Displays the content of the <code>sapinst.log</code> file during the installation.
<i>Retry</i>	Performs the installation step again (if an error has occurred).
<i>Stop</i>	Stops the installation without further changing the installation files. You can continue the installation later from this point.
<i>Continue</i>	Continues with the option you have chosen before.



Lesson Summary

You should now be able to:

- Start and use SAPinst
- Name the log files used by SAPinst

Lesson: Installation of SAP ECC

Lesson Overview

This lesson shows how to install an SAP ECC 6.0 system.



Lesson Objectives

After completing this lesson, you will be able to:

- install an SAP ECC 6.0 system

Business Example

Install an SAP ECC 6.0 system

After you did all necessary planning and preparation steps, start SAPinst from the installation master DVD and choose the installation service to install an SAP ECC system.

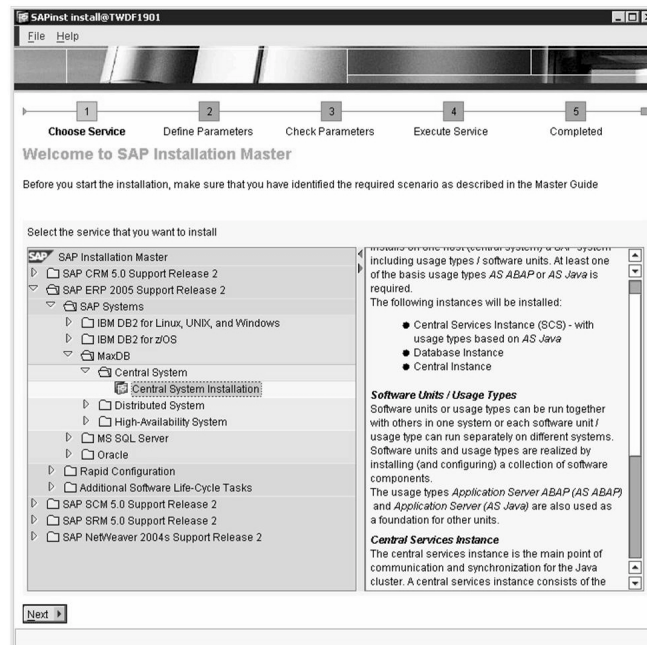


Figure 84: Choose Service to be Installed - 1/18

Select the installation service *Central System Installation* for installing the necessary components of an SAP system on one central host. The installation service is database dependent. Navigate to *SAP ERP 2005 Support Release 2* → *SAP Systems* → *<your database>* → *Central System* → *Central System Installation*. Please use **MaxDB** in the exercise!

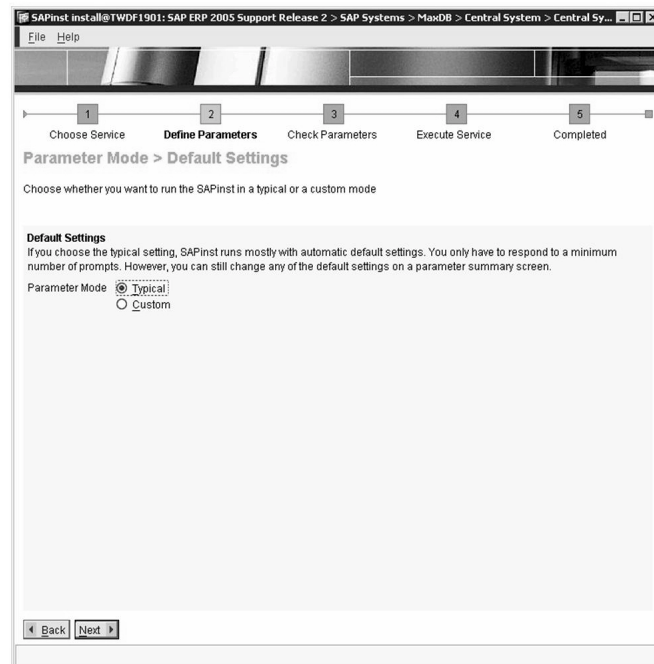


Figure 85: Parameter Mode Selection - 2/18

In the second phase of the installation procedure *SAPinst* queries for parameters and their values needed during the installation.

Depending on the selectable *Parameter Mode* (**Typical** or **Custom**) the installation tool queries less or more parameters. In case **Typical** is selected some parameters are set to default values.



Hint: Even if selecting **Typical** the default values can be changed in phase three (*Check Parameters*) of the installation process.

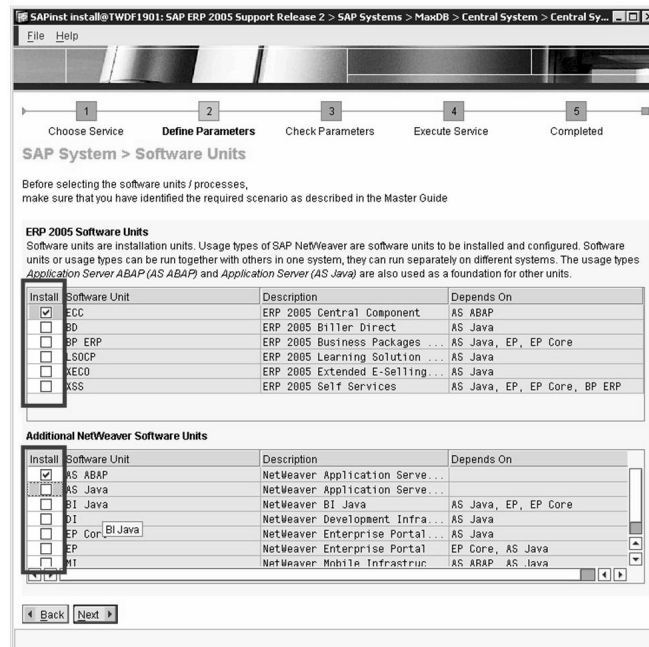


Figure 86: Choose the Installable Software Units - 3/18

Depending on the functionality needed in the system (please refer to the *SAP Master Guide*) select the software units to be installed. Note that the software units may have dependencies which must be selected manually. e.g. the software unit *ECC* depends on the software unit *AS ABAP*.

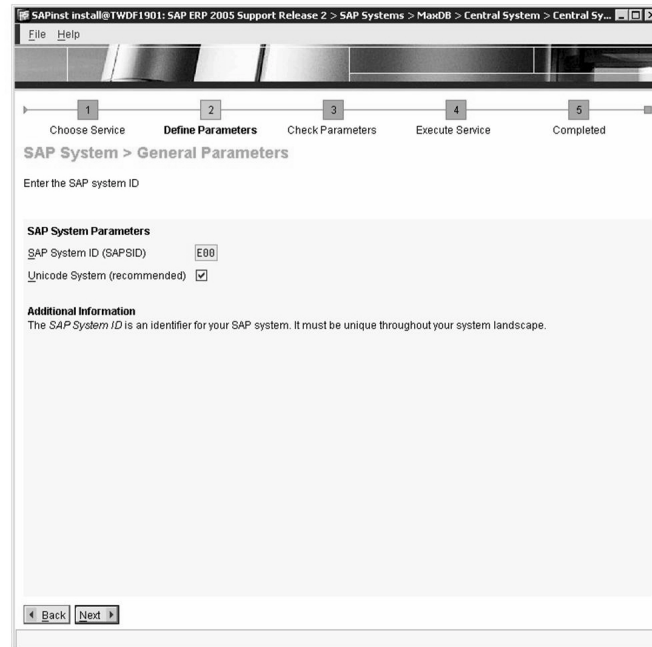


Figure 87: Define General SAP System Parameters - 4/18

On the next screen enter the triple-digit alphanumeric *SAP System ID (SAPSID)* which must be unique in a system landscape. Typically a naming convention for SAPSIDs is or will be established in enterprises to easily identify the different types of system (development, quality, training, productive systems and so on). Some triple-digit combinations are reserved and can not be used as an SAPSID, e.g. DBA, END, FOR, INT, NOT, SAP, USR. Please refer to the *SAP Installation Guide* to see a full list of reserved SIDs.

The recommendation and also the default for all new installations is to install the system as a *Unicode System*. Unicode defines the character set necessary for processing text in any language.



Note: If the ABAP-based system should be able to connect to Java components you must select *Unicode System*.

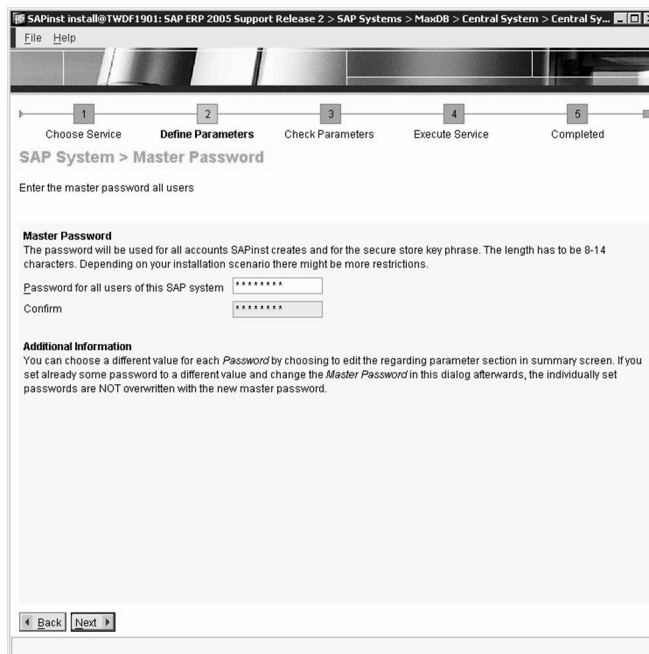


Figure 88: Master Password - 5/18

Enter the *Master Password* in the field *Password for all users of this SAP system* and re-enter it in the field *Confirm*. This sets the password of all standard users created during the installation process to an identical value. The Master Password is also used as the key phrase for the secure store.

Password length has to be 8 to 14 characters.



Hint: If there is a need to set individual passwords for the different standard accounts this can be changed on the summary screen presented on the third phase of the installation.



Figure 89: Database Parameters - 6/18

Enter a triple-digit ID to identify the database (*DBSID*). It is commonly identical with the *SAPSID* entered two steps before.



Figure 90: Specify Installation Export DVDs Location - 7+8/18

In the *Media Browser* screen browse for and select the location of the *Installation Export DVD 1*. By activating the flag *Check Location* SAPInst checks immediately after pressing *OK* if the specified location contains the required DVD content.

After pressing *OK* the next screen gathers the information for the *Installation Export DVD 2*.



Hint: If a slow connection (e.g. network connection) is between the DVD location and the host where SAPInst runs, it is highly recommended to copy the DVDs content to the local file system before starting the installation. SAPInst can do that copy job prior to the installation just by specifying a location in the field *Copy Package To*.



SAPinst install@TWDF1901: SAP ERP 2005 Support Release 2 > SAP Systems > MaxDB > Central System > Central Sy...

File Help

1 Choose Service 2 Define Parameters 3 Check Parameters 4 Execute Service 5 Completed

Media Browser > Software Package Check

Enter the location of the required software packages

Software Package(s)

Media Name	Package Location	Check Location	Copy Package To
MaxDB RDBMS	G:\ADM110_ECC6_SR2_DV... Browse...	<input checked="" type="checkbox"/>	Browse...

Additional Information
SAPinst will detect the required software packages on the media and check the package identification file LABELASC of the required software packages.
If you do not want to check the location now, deselect the Check Location flag and SAPinst will ask you again later.
If you want to copy the media to your local disk, enter the target location in the Copy Package To column.

Cancel OK

Figure 91: Specify MaxDB DVD Location - 9/18

As done in the steps before specify now the location of the *MaxDB RDBMS* DVD.



SAPinst install@TWDF1901: SAP ERP 2005 Support Release 2 > SAP Systems > MaxDB > Central System > Central Sy...

File Help

1 Choose Service 2 **Define Parameters** 3 Check Parameters 4 Execute Service 5 Completed

Media Browser > Software Package Request

Enter the location of the required software packages

Media Name	Package Location	Copy Package To
UC Kerne1 NW2004sSR2	G:\ADM110_ECC6_SR2_DVD\Ke... Browse...	Browse...

Additional Information
 SAPinst will detect the required software packages on the media and check the corresponding package identification files
 LABEL.ASC.
 If you want to copy the media to your local disk, enter the target location in the Copy Package To column.

Cancel OK

Figure 92: Specify Kernel DVD Location - 10/18

Depending on your selection a couple of steps before (Unicode or Non-Unicode system) specify here the location of the Kernel DVD. The figure below shows the inquiry to the Unicode Kernel DVD.

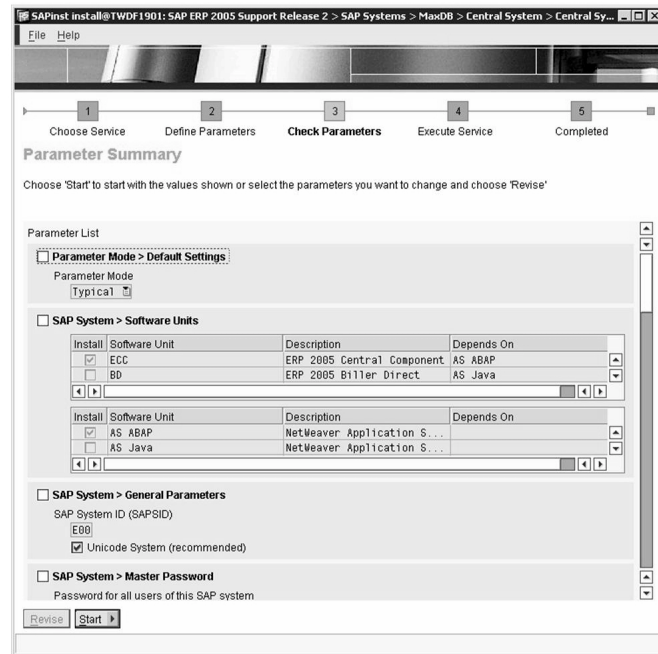


Figure 93: Parameter Summary - 11/18

After all DVD locations were specified SAPinst responds with the *Parameter Summary* screen as part of phase three of the installation process.

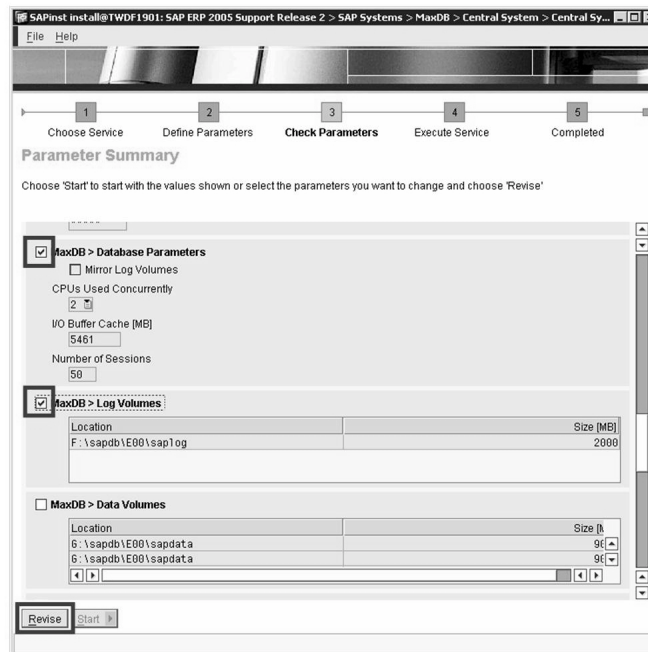


Figure 94: Revise Parameters - 12/18



Caution: Please make sure to carefully verify all your parameters and their values. The *Parameter List* now gives the last chance to correct values.

Here also values can be changed where a default was proposed caused by the selection of the *Parameter Mode Typical* in the beginning of the installation.



Hint: Now you have also the chance to declare individual passwords for certain accounts instead of using the *Master Password*.



SAPinst install@TWDF1901: SAP ERP 2005 Support Release 2 > SAP Systems > MaxDB > Central System > Central Sy...

File Help

1 Choose Service 2 Define Parameters 3 Check Parameters 4 Execute Service 5 Completed

MaxDB > Database Parameters

Enter the parameters for the database instance

Database Identification

Database Host TWDF1901

Database ID (DBSID) E00

Database Parameters

Mirror Log Volumes ☐

CPUs Used Concurrently 1

I/O Buffer Cache (MB) 1024

Number of Sessions 50

Additional Information

The suggested value of *Number of Sessions* considers only the initial installation. If you plan to install further dialog instances, you have to increase the initial value. Each database session requires its own memory.

Back Next

Figure 95: Changing Parameters - 13/18

Select one or more parameters from the *Parameter List* by activating the corresponding check box, and click the button *Revise*. SAPinst now takes you back to the appropriate configuration screens.



SAPinst install@TWDF1901: SAP ERP 2005 Support Release 2 > SAP Systems > MaxDB > Central System > Central Sy...

File Help

1 Choose Service 2 Define Parameters 3 Check Parameters 4 Execute Service 5 Completed

MaxDB > Log Volumes

Specify the log volumes for your database

Database Parameters

Database ID (DBSID) E00

Minimum Log Size (MB) 2000

Log Volumes

Each row of the table below represents a log volume.

Location	Size (MB)
G:\sapdb\E00\saplog	2000

Add Remove

Back Next

Figure 96: Changing Parameters - 14/18

Make your changes! A click on *Next* takes you to the configuration screen of the next revised parameter. After modifying the last revised parameter click on *Next* to get back to the *Summary Screen*.



SAPinst Install@TWDF1901: SAP ERP 2005 Support Release 2 > SAP Systems > MaxDB > Central System > Central Sy...

File Help

1 Choose Service 2 Define Parameters 3 **Check Parameters** 4 Execute Service 5 Completed

Parameter Summary

Choose 'Start' to start with the values shown or select the parameters you want to change and choose 'Revise'

☐ **MaxDB > Create Database Statistics**

Database Statistics
Skip statistics creation

☐ **SAP System > Central Instance**

Central Instance Number
03

☐ **SAP System > Central Instance**

ABAP Messaging Service Port
3903

Internal ABAP Messaging Service Port
3903

Host with Transport Directory
TWDF1901

☐ **SAP System > Unpack Archives**

Unpack / Archive	Codepage	Destination	Downloaded To
<input checked="" type="checkbox"/> DBINDEP\SAPEX...	Unicode	6:\usr\sap\E00\SY...	
<input checked="" type="checkbox"/> ADA\SAPEXEDB.SAR	Unicode	6:\usr\sap\E00\SY...	

Revise Start

Figure 97: Parameter Summary - 15/18

Carefully check all the parameters! If everything is correct, a click on *Start* triggers the start of the installation.

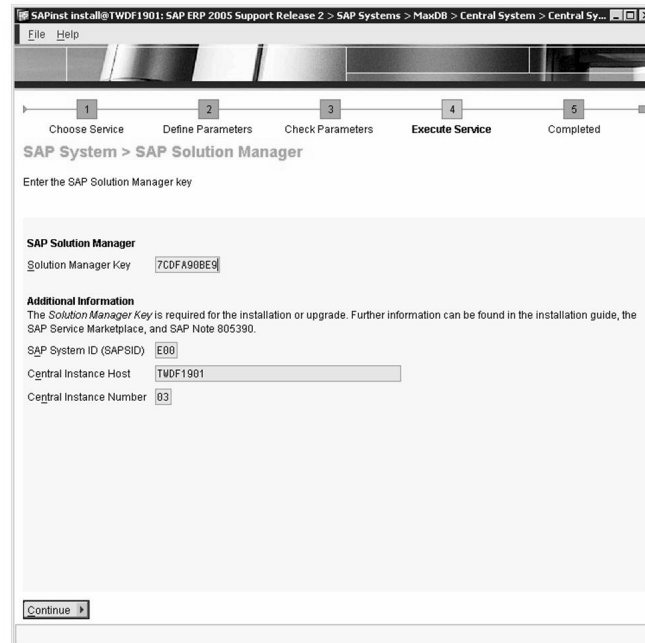


Figure 98: Solution Manager Key - 16/18

One step in the fourth phase (*Execute Service*) of the installation is querying the *Solution Manager Key*. Providing the *Solution Manager Key* is a mandatory step in the installation procedure which can not be skipped.

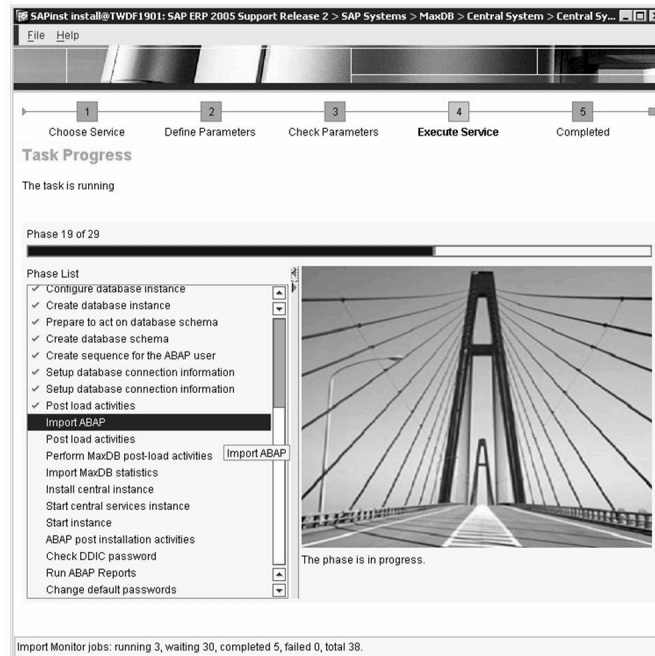


Figure 99: Task Progress - 17/18

A click on *Continue* processes the installation.



Figure 100: Confirm the Installation - 18/18

After all the installation tasks were successfully performed a click on *OK* finalizes the installation procedure.

Exercise 6: Install an SAP ECC 6.0 System

Exercise Objectives

After completing this exercise, you will be able to:

- install an SAP ECC 6.0 system

Business Example

Task: Install SAP ECC 6.0

Install an SAP ECC 6.0 system on the platform combination Microsoft Windows and MaxDB.

1. Call SAPinst from the SAP Installation Master DVD. Choose *SAP ERP 2005 Support Release 2* → *SAP Systems* → *MaxDB* → *Central System* → *Central System Installation* as your installation service. The path to the DVDs is provided by your instructor. Freely choose a **SID**.

Solution 6: Install an SAP ECC 6.0 System

Task: Install SAP ECC 6.0

Install an SAP ECC 6.0 system on the platform combination Microsoft Windows and MaxDB.

1. Call SAPinst from the SAP Installation Master DVD. Choose *SAP ERP 2005 Support Release 2* → *SAP Systems* → *MaxDB* → *Central System* → *Central System Installation* as your installation service. The path to the DVDs is provided by your instructor. Freely choose a **SID**.
 - a) Follow the instructions and steps provided in the lesson *Installation of SAP ECC 6.0*.



Lesson Summary

You should now be able to:

- install an SAP ECC 6.0 system

Related Information

-

Lesson: Installation of SAP NetWeaver Portal

Lesson Overview

This lesson explains how to install an SAP NetWeaver Portal.



Lesson Objectives

After completing this lesson, you will be able to:

- install an SAP NetWeaver Portal

Business Example

After the successful installation of SAP ECC 6.0 with Usage Type AS-ABAP, you as customer decide to use application XSS together with your SAP ECC 6.0. As the system administrator, you need to install SAP NetWeaver Portal.

Install an SAP NetWeaver Portal System

After you did all the necessary planning and preparation steps start SAPinst from the installation master DVD and choose the installation service to install a SAP NetWeaver system.

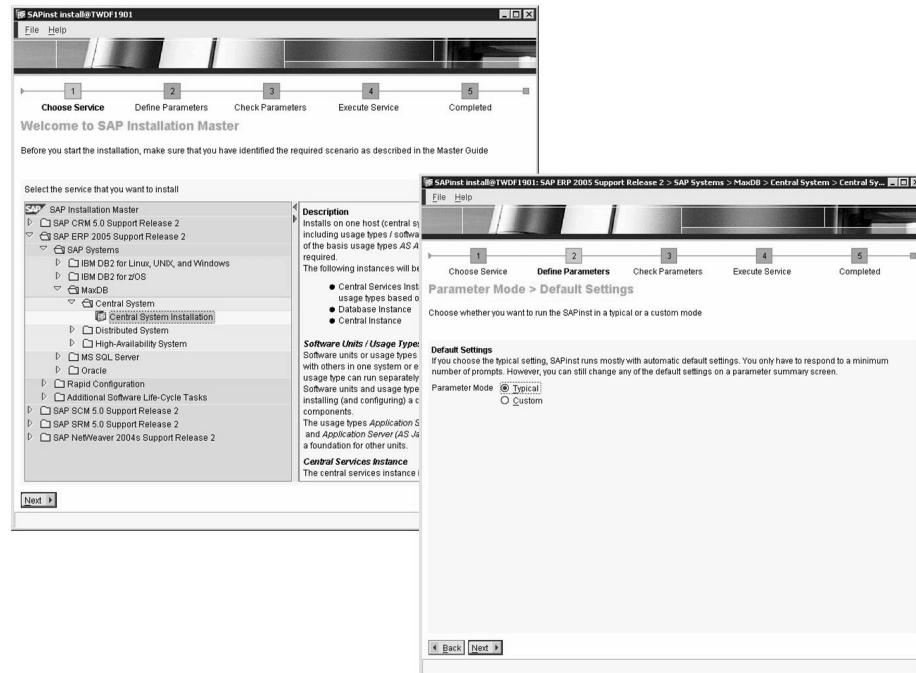


Figure 101: Choose Service to be Installed/Parameter Mode Selection - 1/10

Depending on the selectable *Parameter Mode* (**Typical** or **Custom**) the installation tool queries less or more parameters. In case **Typical** is selected some parameters are set to default values and can be changed phase *Check Parameters*.



SAPinst install@TWDF1901: SAP ERP 2005 Support Release 2 > SAP Systems > MaxDB > Central System > Central Sy...

File Help

1 Choose Service 2 Define Parameters 3 Check Parameters 4 Execute Service 5 Completed

SAP System > Software Units

Before selecting the software units / processes, make sure that you have identified the required scenario as described in the Master Guide

ERP 2005 Software Units

Software units are installation units. Usage types of SAP NetWeaver are software units to be installed and configured. Software units or usage types can be run together with others in one system, they can run separately on different systems. The usage types *Application Server ABAP (AS ABAP)* and *Application Server (AS Java)* are also used as a foundation for other units.

Install	Software Unit	Description	Depends On
<input type="checkbox"/>	ECC	ERP 2005 Central Component	AS ABAP
<input type="checkbox"/>	BD	ERP 2005 Biller Direct	AS Java
<input checked="" type="checkbox"/>	BP ERP	ERP 2005 Business Packages ...	AS Java, EP, EP Core
<input type="checkbox"/>	LSOCP	ERP 2005 Learning Solution ...	AS Java
<input type="checkbox"/>	KECO	ERP 2005 Extended E-Selling...	AS Java
<input checked="" type="checkbox"/>	XSS	ERP 2005 Self Services	AS Java, EP, EP Core, BP ERP

Additional NetWeaver Software Units

Install	Software Unit	Description	Depends On
<input type="checkbox"/>	AS ABAP	NetWeaver Application Serve...	
<input checked="" type="checkbox"/>	AS Java	NetWeaver Application Serve...	
<input type="checkbox"/>	BI Java	NetWeaver BI Java	AS Java, EP, EP Core
<input type="checkbox"/>	DI	NetWeaver Development Infra...	AS Java
<input checked="" type="checkbox"/>	EP Core	NetWeaver Enterprise Portal...	AS Java
<input checked="" type="checkbox"/>	EP	NetWeaver Enterprise Portal	EP Core, AS Java
<input type="checkbox"/>	MT	NetWeaver Mobile Infrastruc...	AS ABAP, AS Java

Back Next

Figure 102: Software Units - 2/10

Depending on the functionality needed in the system (please refer to the *SAP Master Guide*) select the software units to be installed. The software unit *XSS* depends on the software units *AS Java*, *EP*, *EP Core*, *BP ERP*.



Figure 103: Choose Java DVD and SID - 3/10

Choose the location of the Java DVD and enter the triple-digit alphanumeric *SAP System ID (SAPSID)* which must be unique in a system landscape. Typically a naming convention for SAPSIDs is or will be established in enterprises to easily identify the different types of system (development, quality, training, productive systems and so on).



The figure shows two overlapping windows from the SAPINST installation wizard. The left window is titled 'SAP System > Master Password' and is at step 2 of the 'Define Parameters' phase. It prompts the user to 'Enter the master password all users' and provides fields for 'Password for all users of this SAP system' and 'Confirm'. The right window is titled 'SAP System > Database Parameters' and is also at step 2 of the 'Define Parameters' phase. It prompts the user to 'Enter the database parameters' and provides fields for 'Database ID (DBSID)' (with 'P00' entered) and 'Database Host' (with 'TW0F1901' entered). Both windows have a progress bar at the top showing steps: 1. Choose Service, 2. Define Parameters, 3. Check Parameters, 4. Execute Service, and 5. Completed.

Figure 104: Master Password and Database Parameter - 4/10

Enter the *Master Password*. This sets the password of all standard users created during the installation process to an identical value. Password length has to be 8 to 14 characters. Enter a triple-digit ID to identify the database (*DBSID*). It is commonly identical with the *SAPSID*.



Figure 105: Location of RDBMS and Kernel DVD - 5/10

Specify the location of *RDBMS*- and *Kernel*-DVD.

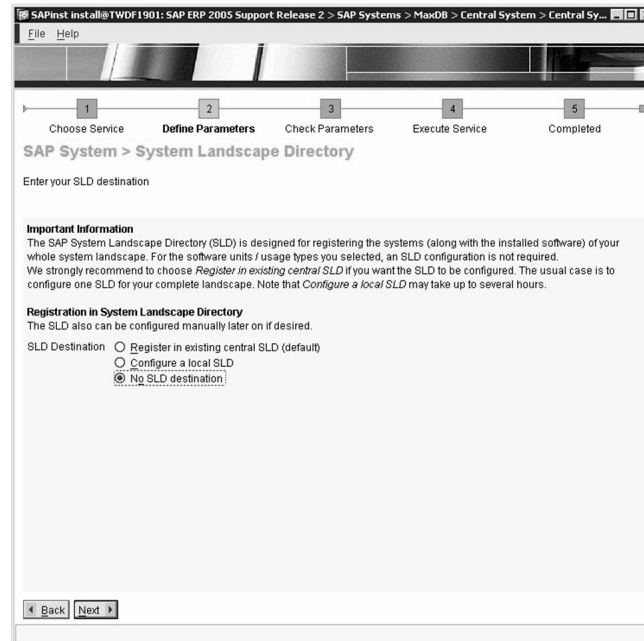


Figure 106: SLD - 6/10

Choose whether you want to connect to an existing System Landscape Directory (SLD), configure the system to be installed as SLD or don't use an SLD.

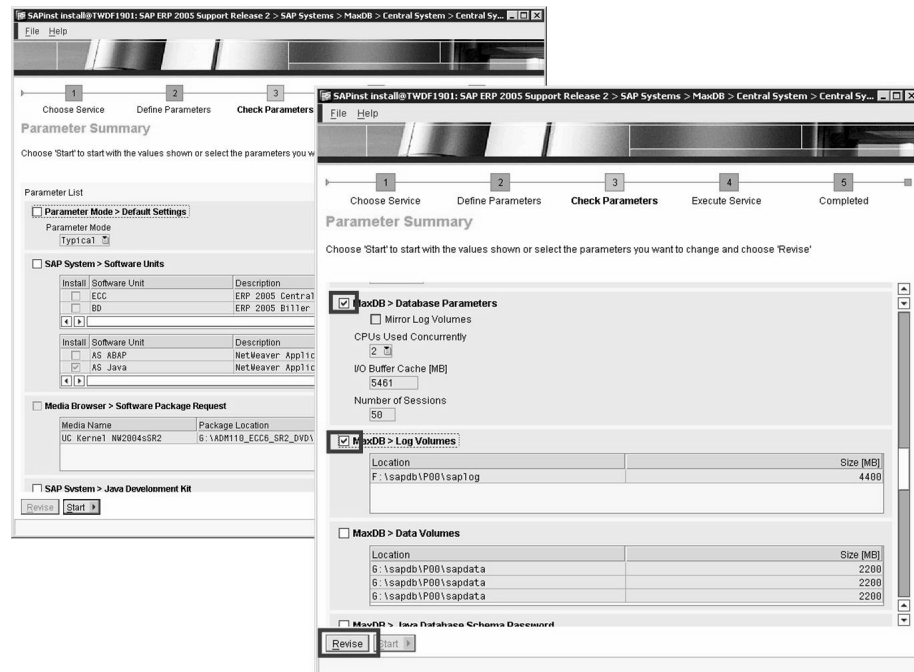


Figure 107: Summary Screen and revise Parameters - 7/10

After all DVD locations were specified SAPinst responds with the *Parameter Summary* screen of the installation process. Make sure to carefully verify all your parameters and their values. Here also values can be changed where a default was proposed caused by the selection of the *Parameter Mode Typical* in the beginning of the installation.



Note: In class ADM110 please change some database parameters.



SAPinst install@TWDF1901: SAP ERP 2005 Support Release 2 > SAP Systems > MaxDB > Central System > Central Sy...

File Help

1 Choose Service 2 Define Parameters 3 Check Parameters

MaxDB > Database Parameters

Enter the parameters for the database instance

Database Identification

Database Host TWDF1901
Database ID (DBSID) P00

Database Parameters

Mirror Log Volumes ☐
CPUs Used Concurrently 1
I/O Buffer Cache (MB) 1024
Number of Sessions 50

Additional Information

The suggested value of *Number of Sessions* considers only the initial...
If you plan to install further dialog instances, you have to increase the...
Each database session requires its own memory.

Back Next

SAPinst install@TWDF1901: SAP ERP 2005 Support Release 2 > SAP Systems > MaxDB > Central System > Central Sy...

File Help

1 Choose Service 2 Define Parameters 3 Check Parameters 4 Execute Service 5 Completed

MaxDB > Log Volumes

Specify the log volumes for your database

Database Parameters

Database ID (DBSID) P00
Minimum Log Size (MB) 4400

Log Volumes

Each row of the table below represents a log volume.

Location	Size (MB)
G:\sapdb\P00\saplog	4400

Browse...

Add Remove

Back Next

Figure 108: Change Database Parameters - 8/10

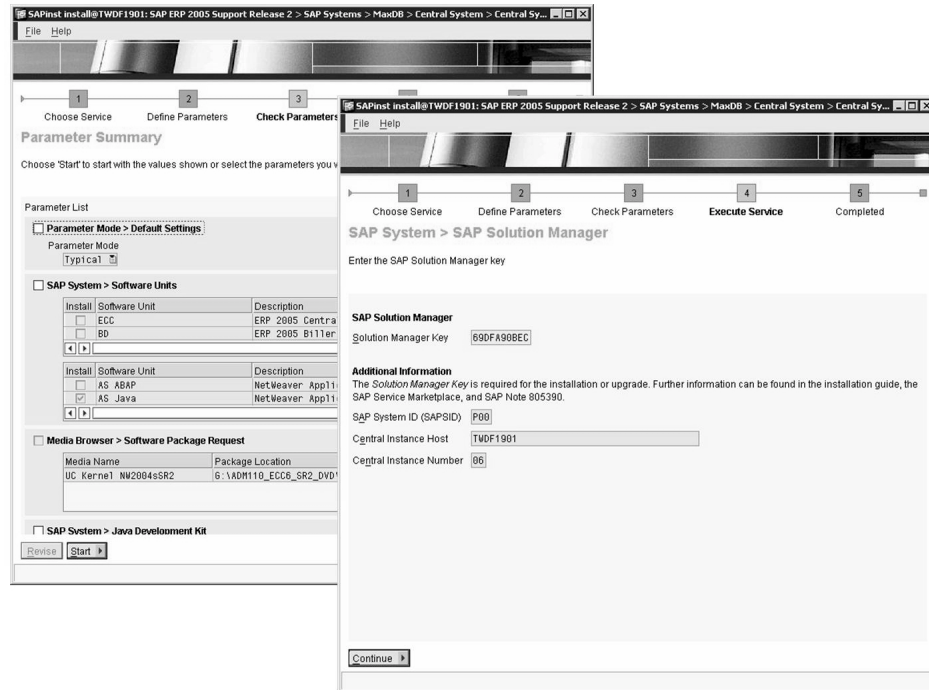


Figure 109: Summary Screen and Solution Manager Key - 9/10

Carefully check all the parameters! If everything is correct, a click on *Start* triggers the start of the installation. The first step in phase *Execute Service* of the installation is querying the *Solution Manager Key*. Providing the *Solution Manager Key* is a mandatory step in the installation procedure which can not be skipped.

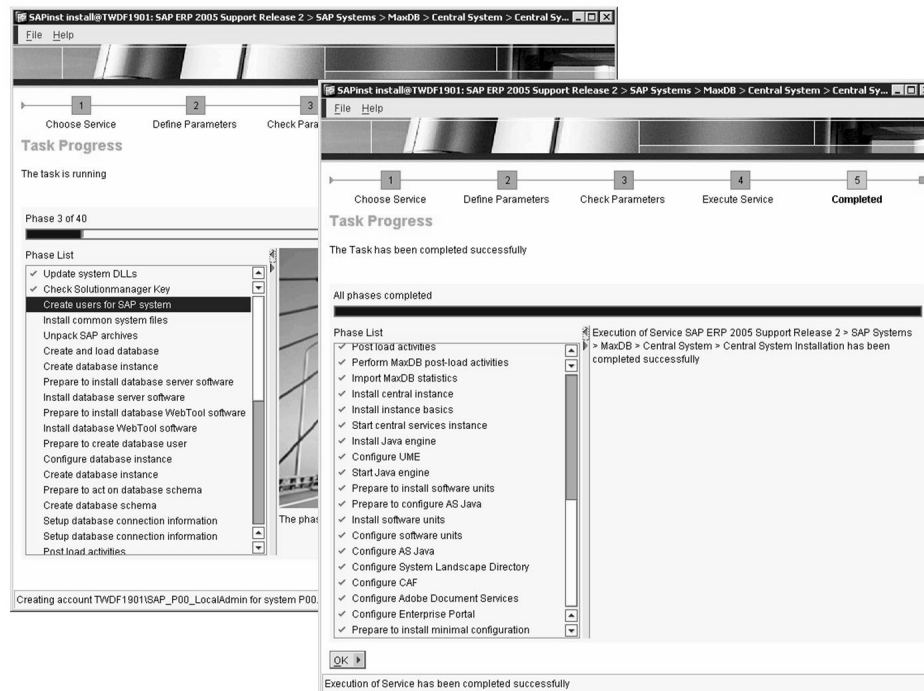


Figure 110: Execute Service and Complete - 10/10

After all the installation tasks were successfully performed a click on *OK* finalizes the installation procedure.

Exercise 7: Install an SAP NetWeaver Portal System

Exercise Objectives

After completing this exercise, you will be able to:

- install an SAP NetWeaver Portal

Business Example

After the successful installation of SAP ECC 6.0 with Usage Type AS ABAP, you as customer decide to use application XSS together with your SAP ECC 6.0. As the system administrator, you need to install SAP NetWeaver Portal.

Task: Install SAP NetWeaver Portal

Install an SAP system with the usage types *AS Java*, *EP*, *EP Core*, *XSS*, *BP ERP* on your training server.

1. Start *SAPinst* and follow the screenshots in lesson *Installation of SAP NetWeaver Portal*.

Solution 7: Install an SAP NetWeaver Portal System

Task: Install SAP NetWeaver Portal

Install an SAP system with the usage types *AS Java*, *EP*, *EP Core*, *XSS*, *BP ERP* on your training server.

1. Start *SAPinst* and follow the screenshots in lesson *Installation of SAP NetWeaver Portal*.
 - a) Logon to operating system of your training server twdf##### with user *install* and password *install*.
 - b) Proceed as described in the lesson.
 - c) During the installation you may need to reference the JCE policy files. They reside on the training share in folder ...\\ADM110_62\\JCE_Policy_Files.



Lesson Summary

You should now be able to:

- install an SAP NetWeaver Portal



Unit Summary

You should now be able to:

- Start and use SAPinst
- Name the log files used by SAPinst
- install an SAP ECC 6.0 system
- install an SAP NetWeaver Portal

Related Information

SAP Service Marketplace, <http://service.sap.com/instguides>

Unit 6

Performing Post-Installation Activities

Unit Overview

This unit explains the necessary post-installation activities. After going through the unit, you will be able to perform all necessary post-installation activities.



Unit Objectives

After completing this unit, you will be able to:

- list relevant post installation steps
- Describe the steps to install SAP License
- Describe the steps to install SAP online documentation
- Describe the steps to install and configure SAProuter
- Describe the steps needed to perform and configure TMS
- Describe the steps needed to configure profile parameters and printers
- Describe the steps to create a productive client
- Perform final installation checks
- Activate SAP ERP Central Component Extension Set
- Start and schedule SAP Load Generator
- Run the Configuration Wizard
- Describe the steps to verify the AS Java configuration

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Lesson: Overview of Post-Installation Steps

Lesson Overview

This lesson gives a short overview of necessary steps after the installation of SAP ERP 6.0.



Lesson Objectives

After completing this lesson, you will be able to:

- list relevant post installation steps

Business Example

You are the system administrator of ABC Limited, a petrochemical company. You installed the latest version of SAP ERP Central Component. Before you can use your SAP ERP 6.0, you have to perform several post installation activities.

Overview of Post-Installation Steps

After you installed the SAP ECC system you need to perform the following steps. The suggested order may vary slightly depending on your installation variant and database:



1. Start and Stop the system
2. Log on to the system
3. Install a permanent license
4. Install the online documentation
5. Configure remote connection to SAP Support
6. Perform initial ABAP configuration, for example transport management system, logon groups, profile parameter, printers
7. Apply latest Support Packages and Patches
8. Create production client (if you don't want to use 001)
9. Perform a full backup of the whole installation
10. Perform various settings depending on what components you installed or want to use, for example settings for Adobe Document Service or Composite Application Framework. Or implement and configure ERP ABAP Add-On components
11. Ensure user security
12. Run the Configuration Wizard
13. Check Java Documentation for Java-relevant settings
14. Configure IT Scenarios with the help of documentation found in SAP Solution Manager

Procedure to Start and Stop the SAP System



- Stop the SAP system by
 - executing command *stopsap* on the host of the SAP system
 - using the SAP Management Console (<http://<hostname>:55513>, where \$\$ is the instance number)
 - using the SAP Microsoft Management Console on the host of the SAP system (Windows only)
- Check the settings for Java Virtual Machine parameters as described in SAP Note 723909.
- Start the SAP system by
 - executing command *startsap* on the host of the SAP system
 - using the SAP Management Console (<http://<hostname>:55513>, where \$\$ is the instance number)
 - using the SAP Microsoft Management Console on the host of the SAP system (Windows only)
- Log on to the ABAP SAP system with standard user *SAP** or *DDIC*
- Log on the Java SAP system with standard user Administrator (Java only) or *j2ee_admin* (ABAP+Java)

You can use this procedure to see if you can start and stop SAP ERP Central Component after the installation.

To log on, install a client software such as the SAP GUI. The two standard users in SAP ERP Central Component after the installation are:

- *SAP** in client 000, 001, 066
- *DDIC* in client 000, 001



Hint: The first thing after you have logged on to the system is to create an own SAP user account. Many post processing activities can NOT be performed as *SAP** or *DDIC*.

Check some basic SAP system services to solve the initial problems that might occur when trying to log on to or run the system for the first time.



- Check the following operating system files in directory \usr\sap\<SID>\<Instance>\work\
 - dev_ms
 - dev_disp
 - dev_dispatcher
 - dev_rd
 - dev_w*
 - dev_server0
- Check transactions
 - SM51 (all available instances)
 - SM50 (all available work processes for the instance)
 - SM21 (system log)
- Check Java System Information (<http://<hostname>:55500/sap/monitoring/SystemInfo>, where \$\$ is the instance number)

Performing a Full Installation Backup



Windows

- **Prerequisites**

- Stop SAP system, database, SAP-related services (SAP<SAPSID>_<instance> and SAPOSCol)

- **Procedure:**

- Save the registry
- Save the system state data
- Back up all SAP-specific and all database-related directories:
 - ◆ \usr\sap
 - ◆ \usr\sap\trans
 - ◆ <HOMEDIR> of <sapsid>adm
 - ◆ \%WINDIR%

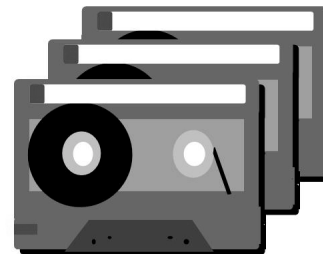


Figure 111: Perform a Full Backup: Windows

Save the Registry:

- Choose *Start → Programs → Accessories → System → Tools → Backup → Emergency Repair Disk*.
- Select *Also Backup the Registry to the Repair directory*. When you confirm your entry, the Registry is written to the disk.

Save system state data:

- Choose *Start → Programs → Accessories → System → Tools → Backup → Backup Wizard*.
- Select *Only back up system state data* and specify the *Backup media type* and the destination of the backup.

Back up all SAP-specific and database-related directories:

- Choose *Start → Programs → Accessories → System → Tools → Backup → Backup Wizard*.
- Select *Backup selected files, drives or network data*.
- Select the Windows directory and all SAP and database-related directories, including `\usr\sap; \usr\sap\trans; <HOMEDIR> of <sapsid>adm; \%WINDIR%`.
- On the *Where to Store the Backup* screen, specify the media type and the destination of the backup.



UNIX

● Prerequisites

- Stop SAP system and database

● Procedure

- Log on as user root. Manually create a compressed tar archive containing all installed files

1. Create the archive:

- Saving to tape:

```
tar -cf - <file_system> | compress -c > <tape_device>
```

- Saving to the file system

```
tar -cf - <file_system> | compress -c > ARCHIVENAME.tar.Z
```

2. Compress the archive:

```
compress <ARCHIVNAME>
```

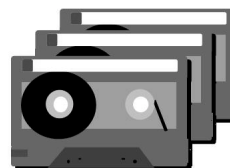


Figure 112: Perform a Full Backup: UNIX

You need to back up the following directories and files:



- All database-specific directories
- All SAP-specific directories:
 - `/usr/sap/<SAPSID>`
 - `/usr/sap/trans`
 - `<sapmnt>/<SAPSID>`
 - home directory of the user `<sapsid>adm`
 - root file system

This saves the structure of the system and all configuration files (for example, file system size, logical volume manager configuration, and database configuration data).

This procedure works on all hardware platforms. See your system administration guide for details and for operating system-specific backup procedures.

Exercise 8: Stop, Start and Logon

Exercise Objectives

After completing this exercise, you will be able to:

- Stop and Start the SAP System
- Log on to the SAP System

Business Example

You are the system administrator of ABC Limited, a petrochemical company. You installed the latest version of SAP, SAP ERP Central Component. Now, you need to restart SAP ERP Central Component, perform the final checks, and install SAP License and other components.

Task 1: Restart and Logon

Restart the SAP ECC system and perform some basic checks.

1. Stop and restart SAP system using Microsoft Management Console.
2. Check developer traces on the operating system. Log on to the SAP system and check work processes, installed instances and systemlog for error messages.

Task 2:

Check Java System Information of your SAP NetWeaver Portal system.

1. Call Java System Information of your SAP NetWeaver Portal system and check whether all Java processes are up and running.

Solution 8: Stop, Start and Logon

Task 1: Restart and Logon

Restart the SAP ECC system and perform some basic checks.

1. Stop and restart SAP system using Microsoft Management Console.
 - a) Start Terminal Server Client and enter the physical host name. Log on to the operating system as the *<sid>adm* user.
 - b) Start Microsoft Management Console by choosing the appropriate icon. Select the desired instance(s), right-click and choose *Stop* from the context menu. Depending on whether you choose an individual instance or the whole system, either an individual instance or the entire SAP system stops.
 - c) Choose the node for the central instance in the Microsoft Management Console tree. Select the desired instance, right-click and choose *Start*.
2. Check developer traces on the operating system. Log on to the SAP system and check work processes, installed instances and systemlog for error messages.
 - a) On the operating system, open the *dev_ms*, *dev_disp*, *dev_rd*, and *dev_w#* (*#* = 0, 1), *dev_dispatcher*, *dev_server0* files, located in the (*G:\usr\sap\<SID>\D*\work*) instance directory using Windows Explorer. Check the files due to errors.
 - b) Log on to your SAP system. Choose transaction SM51) to display the active SAP instances. The process overview (*transaction SM50*) displays the list of work processes of the instance to which you are logged on.
 - c) Check the system log to find errors (*transaction SM21*).

Task 2:

Check Java System Information of your SAP NetWeaver Portal system.

1. Call Java System Information of your SAP NetWeaver Portal system and check whether all Java processes are up and running.
 - a) Open a Browser and call <http://<hostname>:55500/sap/monitoring/System-Info>, where *\$\$* is the instance number).
 - b) Enter the standard administrator user *Administrator* and type the password (masterpassword) chosen during the installation.
 - c) Check whether all Java processes have the status “running”.



Lesson Summary

You should now be able to:

- list relevant post installation steps

Lesson: SAP License, Online Documentation, Remote Connection to SAP Support

Lesson Overview

The lesson describes how to install an SAP License, the SAP online documentation, and a remote connection to SAP Support.



Lesson Objectives

After completing this lesson, you will be able to:

- Describe the steps to install SAP License
- Describe the steps to install SAP online documentation
- Describe the steps to install and configure SAProuter

Business Example

ABC Limited, a petrochemical company, uses SAP to manage its data. The company now wants to install the latest version of SAP system, SAP ERP Central Component, to use the functions delivered with the extension set of SAP ERP Central Component. As the system administrator in the company, you have installed SAP ERP Central Component. Now you need to perform the necessary post-installation activities, such as installing an SAP License.

Steps to Install SAP Licenses

Install a new permanent license after you do the following:



- Perform a new SAP system installation
- Rename your SAP system ID
- Change the message server host
- Change an existing hardware configuration, change of hardware key, and database type

To work with an SAP system, you require an SAP License. After the installation of the central instance, a temporary license is active only for four weeks. During this period, you must install a permanent license. If the temporary license expires, only the SAP* user can log on to SAP ERP Central Component. With this temporary license, you cannot create new repository objects or modify SAP repository objects.

You can install several licenses. When you change the installation number, all dependent information, such as SSCR, is lost.

You can find information about applying for an SAP license key in the SAP Service Marketplace at <http://service.sap.com/licensekey>, and in SAP Notes 767123 and 765620.

➔ **Note:** As of SAP NetWeaver 7.0, in addition to the old type license key, there is also a new type of license key, which is based on a digital signature. Both types of license key are installed and administered with transaction SLICENSE, as previously, and are available as temporary and permanent license keys. The functions for the new license keys can be found by choosing the *New Licenses* button. To allow a seamless transition, both types of license keys initially function in parallel after an upgrade. If license keys of the old type were already installed, you can continue to use these. However, we recommend that you also import license keys of the new type, since the license keys of the old type will be deactivated in the future. For this reason, only keys of the new type are assigned for new installations.

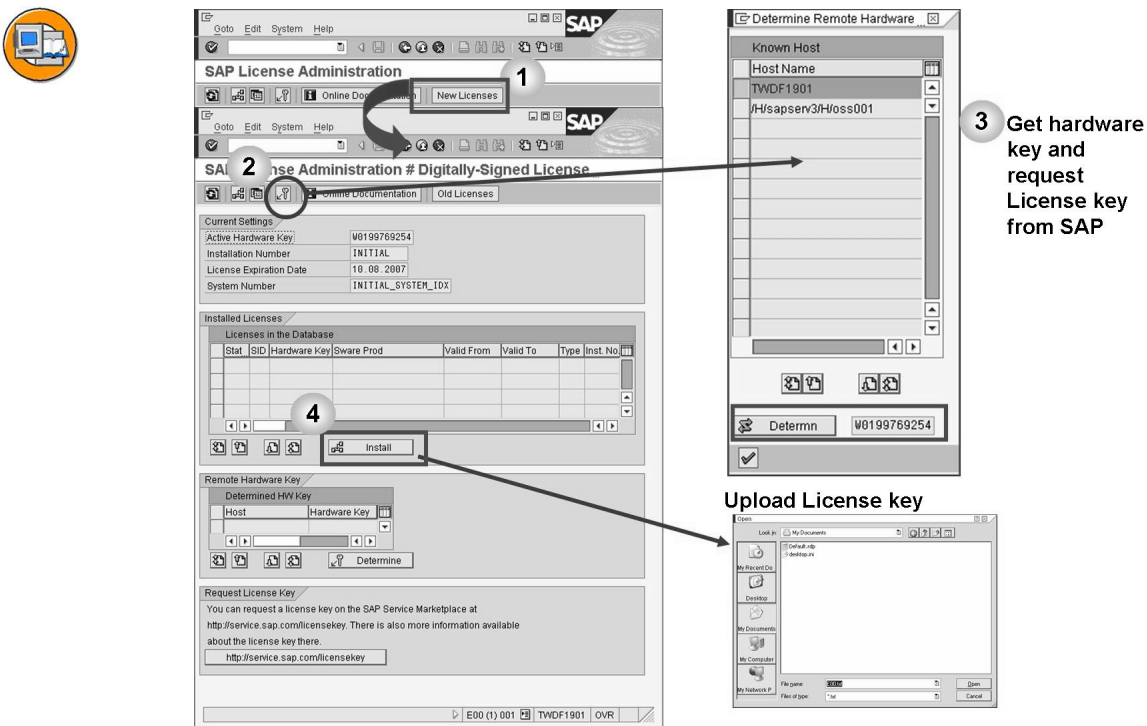


Figure 113: Installing New SAP License

You can use transaction SLICENSE to determine the hardware key on all computers where an RFC connection is maintained.

On the initial screen of the transaction SLICENSE, choose *New Licenses*. Now choose *Goto* → *Determine remote hardware key*. Select the *Hostname* and choose *Determine* to execute *saplicense -get* on the selected computer and to receive the hardware key as a result.

Use this hardware key to request a license at SAP.

You can install a new SAP License on your SAP system using the SLICENSE transaction. Choose *Edit* → *Install License* and upload the license file you received from SAP. After the license is installed, the license key is activated immediately. After that, *Saplicense -install* is executed on the computer.

SAP NetWeaver Library *Technology Consultant's Guide* → *Cross-NetWeaver Configurations* → *SAP License Key*

AS Java License

In case you have a system based on SAP NetWeaver AS Java (without ABAP), for example an SAP NetWeaver Portal system, you have to install the SAP license with the SAP Visual Administrator.

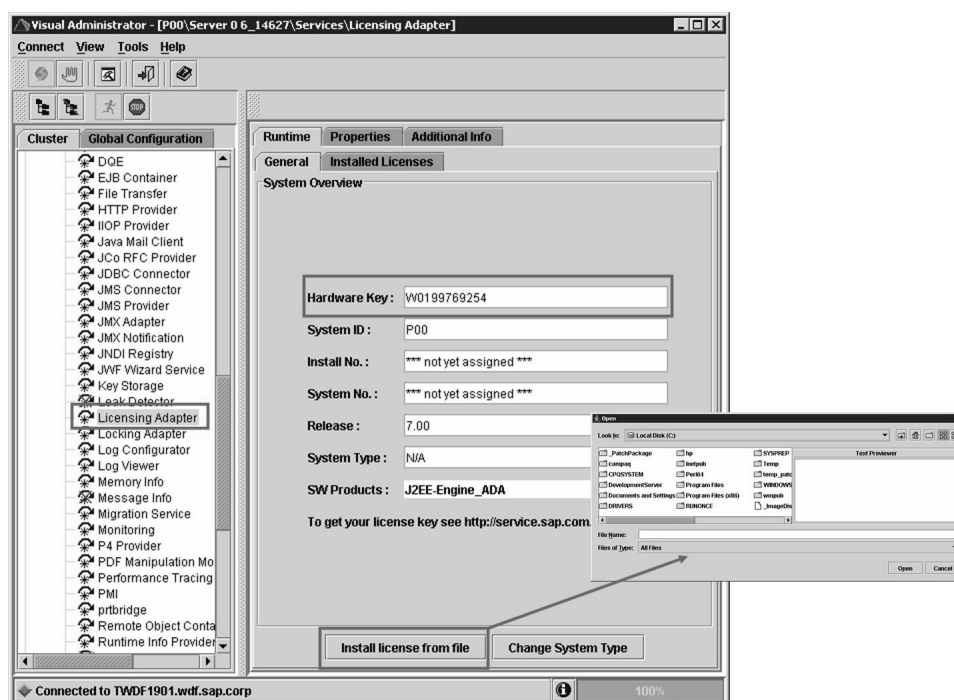
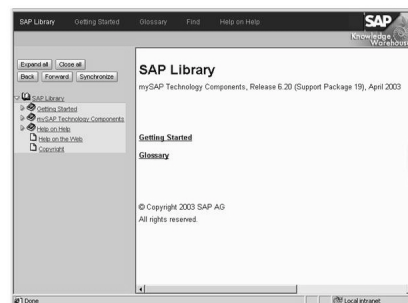


Figure 114: Installing License for SAP NetWeaver AS Java based Systems

Log on to the Visual Administrator. You may need to create a new connection entry first. For this you need to know either the HTTP port of the Java Message Server (default 81<instance number>) or the P4 port of a Java Dispatcher (default 5<instance number>04).

In the Visual Administrator go to the server node of the central instance and select the *Licensing Adapter Service*. Copy the *Hardware Key* to request the license from SAP. Afterwards choose *Install license from file* to install the license.

Steps to Install SAP Online Documentation



- **Online help on the CD-ROM SAP Library is delivered in two file formats:**

- Standard HTML (PlainHtml, DynamicHelp)
- Compiled HTML (HtmlHelp)

- **For online access from the SAP system, both formats require the following steps:**

1. Installing the help files
2. Customizing setup variants for Online Help
3. Installing a Web browser or viewer

Figure 115: Installing SAP Online Documentation

There is one SAP Library DVD containing both formats, standard HTML and compiled HTML.

With help type PlainHtmlHttp (installation of help files on a Web server), you also need to maintain Web server settings.

For more information about installing SAP online documentation, refer to Installing the Online Documentation in the root directory of the SAP Library - Online Documentation DVD or go to <http://service.sap.com/instguides> *Other Documentation* → *SAP Library*.

General information to install the helpfiles:



- Use separate directories for different language versions of the documentation.
- Use a two-character language key, such as EN for English and FR for French, for directory names.

When accessing documentation online, the help processor expects directories that are named with their respective two-character language keys, such as EN for English and FR for French.

Installation of Help Type HtmHelpFile

The Compiled HTML files for help type HtmHelpFile can be viewed directly from the DVD in Microsoft HTML Help Viewer. For better performance, copy the help files to your local hard disk or to a file server.



- **Install help files from directory Htmhelp\Helpdata on the SAP Library CD-ROM:**
 1. Create a directory on your file server.
 2. Copy the directory Htmhelp\Helpdata<language key> with all its subdirectories from the CD to the documentation directory on the server.

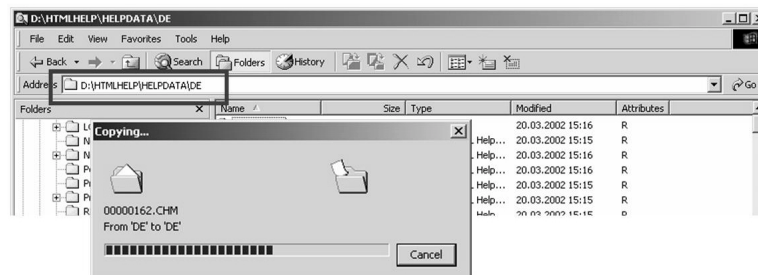


Figure 116: Installation of Help Type HtmHelpFile

Approximately 1 GB of disk space is needed for the English and German language versions.

Installation of PlainHtmlHttp, PlainHtmlFile

The Standard HTML files for help types PlainHtmlHttp and PlainHtmlFile are stored in a packed format in the archive Plainhtm.xxx on the DVD. They cannot be viewed directly from the DVD but must first be unpacked on the local hard drive or on a file server. To unpack the help files you must use the install program (or the insthelp program), which is delivered in various platform-specific versions on the DVD.



- Install the help files and the search engine and search index from the directory Plainhtm on the *SAP Library* CD .

1. Create a directory on the Web server
2. To install the help files, use the version of the install program (or insthelp program) appropriate for the operating system of your Web server. The programs are located in the subdirectory Plainhtm/Install/<operating system> on the DVD.

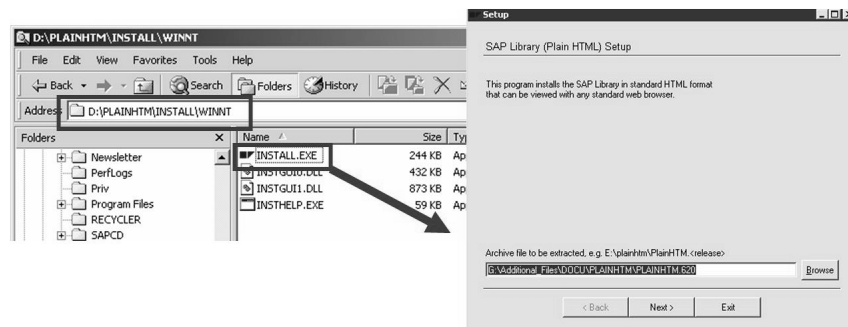


Figure 117: Installation of PlainHtmlHttp, PlainHtmlFile (1/2)

The complete installation comprises about 200,000 files in about 100,000 directories for one language version. Depending on the file system and the configuration of the hard disk they require between 850 MB (NTFS) and 2 GB (UNIX) of disk space.

You cannot install online help on a Microsoft FAT32 file system because it cannot handle the large number of files and directories. If your web server runs on Microsoft Windows, do not install the help documentation on the system partition; choose another partition instead.

The install program uses the insthelp program and is available only for Microsoft Windows and UNIX. On UNIX, you have to use the program insthelp if you have not installed a graphical user interface.

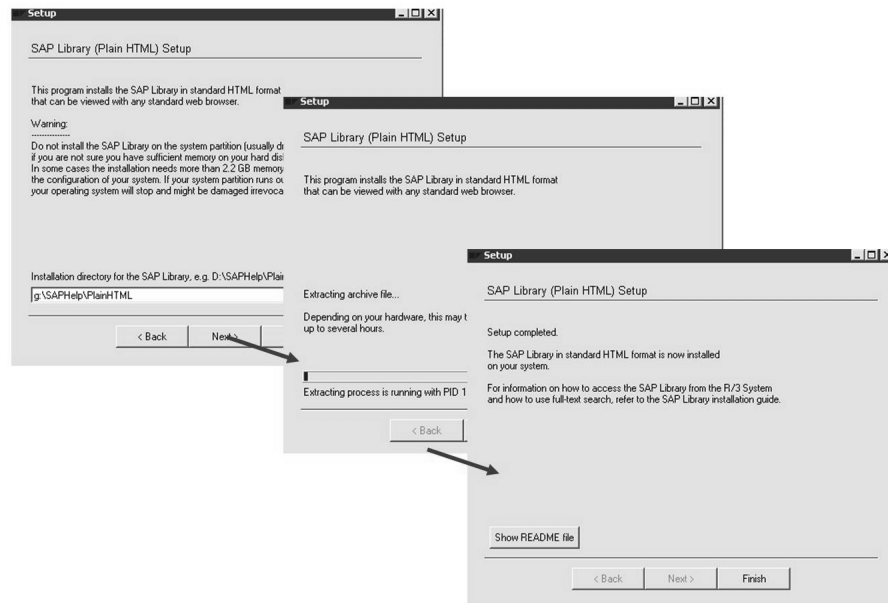


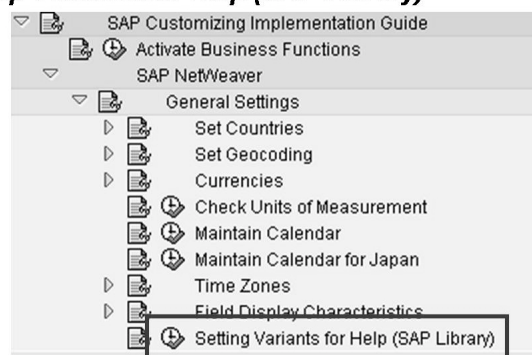
Figure 118: Installation of PlainHtmlHttp, PlainHtmlFile (2/2)

Setup Variants and Browsers for Online Help



- **Maintaining setup variants for Online Help:**

- **IMG activity: Transaction SPRO → SAP Customizing Implementation Guide → SAP NetWeaver → General Settings → Setup Variants for Help (SAP Library)**



- **Installing one of these Web Browsers or Viewers:**

- **HTML-Help Viewer with Microsoft Internet Explorer**
- **Microsoft Internet Explorer**
- **Netscape Navigator**

Figure 119: Setup Variants and Browsers for Online Help

For a given front-end platform, a setup variant specifies a help type, the location of help files (server and/or path), and the language version of help files.

The language version specified in the currently active setup variant determines which language version of the online help displays, regardless of the user's logon language.

As of Release 4.6C, maintaining SAP profile parameters for online help has no effect.

The HTML-based online documentation can display with a Web browser on all front-end platforms supported by SAP. However, certain requirements and restrictions must be observed, based on the platform. For more information refer to <http://service.sap.com/instguides> *Other Documentation* → *SAP Library*.

For more information on setup variants for Online Help, see course ADM100.

Remote Connection to SAP Support

SAProuter is an SAP program that acts as an intermediate station (proxy) in a network connection between SAP systems, or between SAP systems and external networks. SAProuter controls the access to your network (application level gateway), and, as such, is a useful enhancement to an existing firewall system (port filter).

- Control and log the connections to your SAP system, for instance from an SAP service center
- Set up an indirect connection when programs involved in the connection cannot communicate with each other due to the network configuration (address conflicts when using non-registered IP addresses or restrictions arising from firewall systems)
- Improve network security by means of the following:
 - A password, which protects your connection and data from unauthorized external access
 - Allowing access from particular SAProuters only.
 - Only allowing encrypted connections from a known partner (using the SNC layer)
- Increase performance and stability by reducing the SAP system workload within a local area network (LAN) when communicating with a wide area network (WAN)

SAP offers its customers access to support and a number of remote services such as the EarlyWatch Service or the GoingLive Service. Therefore, you have to set up a remote network connection to SAP.

For detailed information refer to <http://service.sap.com/remotecconnection> . Also follow SAP Note **35010** - *Service connections: Composite note (overview)*

You require SAProuter if you are using any of the following:



- Remote Services: e.g. EarlyWatch
- Remote Consulting
- SAP Support Portal

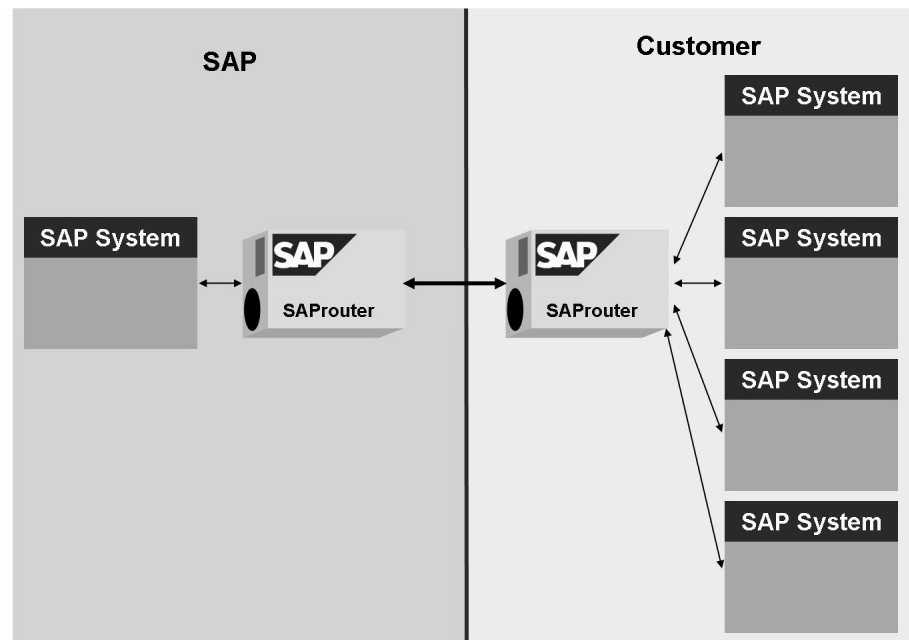


Figure 120: SAProuter and SAP Support Portal

SAProuter increases network security and simplifies network configuration. SAProuter allows you to make indirect network connections. SAProuter software is included in the standard SAP kernel. An additional installation is not required.

SAP Support Portal is the SAP-based service system, which provides the technical link between SAP customers and SAP. SAProuter controls connections from SAP to your SAP system.

SAProuter is started as a demon under UNIX and as a service under Windows.



- Install SAProuter (see attachment SAP Note 30289).
- Configure routing table (see attachment SAP Note 30289).
- Start SAProuter (see attachment SAP Note 30289).
- Configure connection using transaction OSS1 (see SAP Note 17285).

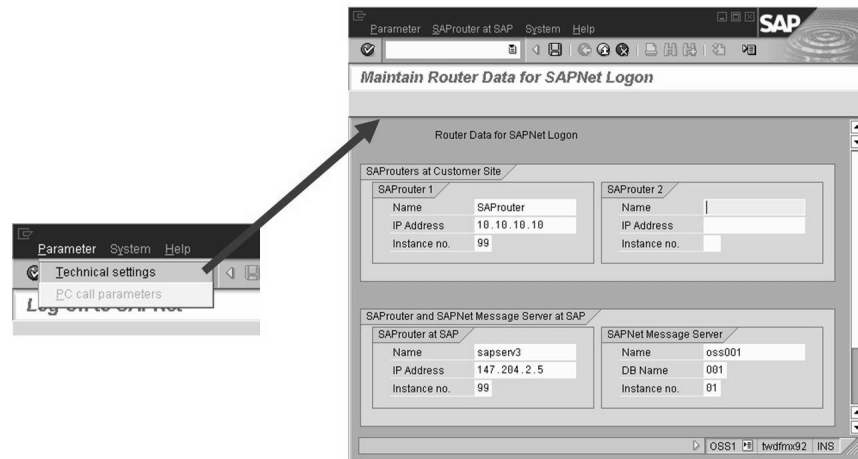


Figure 121: Configuring SAProuter and SAP Support Portal

For information about installing SAProuter on the AS400 platform, read SAP note 86329.

For more information on using SAProuter, see course ADM960.

Also see SAP notes:

- Remote connection: SAP note 14716
- Log on to Online Service System: SAP note 17285
- SAProuter: SAP note 30289
- Security aspects for remote access: SAP note 46902



- Select the suitable SAProuter at SAP

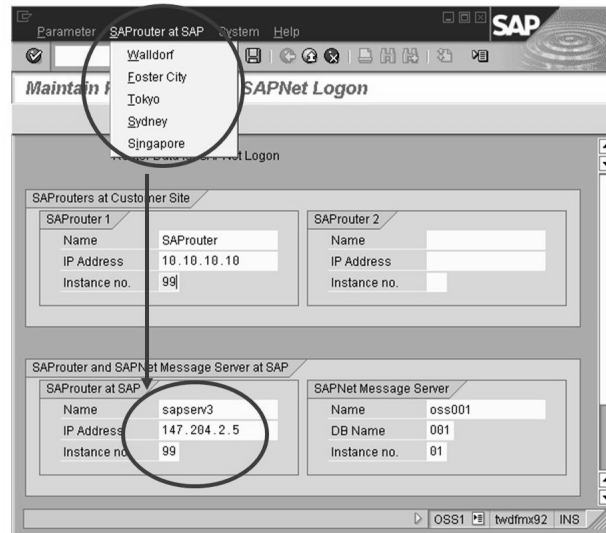


Figure 122: Configuring SAProuter

Select the suitable SAProuter at SAP.

Exercise 9: SAP License, SAProuter

Exercise Objectives

After completing this exercise, you will be able to:

- Check the installed license
- Install SAProuter for SAPNet-R/3 Frontend access

Business Example

You are the system administrator of ABC Limited, a petrochemical company. You installed the latest version of SAP, SAP ERP Central Component. Now, you need to restart SAP ERP Central Component, perform the final checks, and install SAP License and other components.

Task 1: SAP License

Check the installed license.

1. Check whether a temporary license is installed.
2. Request the hardware key.

Task 2: SAProuter

Install, start, and configure SAProuter for SAP-R/3 front-end access.

Attachment of SAP note 30289 is stored on the server used for the course, such as twdf####, in the directory *M:\ADM110_62\SAP_Notes* .

1. Install SAProuter and create the saprountab permission file.

Proceed as described in attachment of SAP note 30289 *Installation on Windows*. Use the saprouter.exe and niping.exe executables from the *G:\usr\sap\<SID>\SYS\exe\uc\NTADM64* directory.

2. Create the saprountab route permission table.

Create the saprountab file in the *G:\usr\sap\saprouter* directory and add the "P * * *" entry.

3. Start SAProuter.

Proceed as described in attachment of SAP note 30289 section *Starting SAProuter*.

4. Check the technical settings in transaction OSS1.

Solution 9: SAP License, SAProuter

Task 1: SAP License

Check the installed license.

1. Check whether a temporary license is installed.
 - a) Start transaction SLICENSE (*Tools → Administration → Administration → SAP Licenses*) and look at the Installed Licenses table to see the installed temporary license for your <SID>.
2. Request the hardware key.
 - a) Start transaction SLICENSE (*Tools → Administration → Administration → SAP Licenses*) and choose *Goto → Determine Hardware Key*.
 - b) Select your server, choose *Determine*, and choose *Continue*, which is the green arrow.

Task 2: SAProuter

Install, start, and configure SAProuter for SAP-R/3 front-end access.

Attachment of SAP note 30289 is stored on the server used for the course, such as twdf####, in the directory *M:\ADM110_62\SAP_Notes*.

1. Install SAProuter and create the saprountab permission file.

Proceed as described in attachment of SAP note 30289 *Installation on Windows*. Use the saprouter.exe and niping.exe executables from the *G:\usr\sap\<SID>\SYS\exe\uc\NTADM64* directory.

 - a) Read the attachment of SAP note and follow its instructions in section *Installation on Windows*.
2. Create the saprountab route permission table.

Create the saprountab file in the *G:\usr\sap\saprouter* directory and add the "P * * *" entry.

 - a) Create a file with the name saprountab in the *G:\usr\sap\saprouter* directory. Open the file and add the content: "P * * *".
3. Start SAProuter.

Continued on next page

Proceed as described in attachment of SAP note 30289 section *Starting SAProuter*.

- a) Read the attachment of SAP note and follow its instructions in section *Starting SAProuter*.
4. Check the technical settings in transaction OSS1.
 - a) Proceed as described in this training material on the Configuring SAProuter and SAPNet - R/3 Frontend page.



Lesson Summary

You should now be able to:

- Describe the steps to install SAP License
- Describe the steps to install SAP online documentation
- Describe the steps to install and configure SAProuter

Lesson: Initial ABAP Configuration

Lesson Overview

The lesson explains post-installation activities for ABAP based systems: e.g. configuration of Transport Management System, Profile Parameters, printers, ...

- Configuration of Transport Management System
- Configuration of Profile Parameters
- Configuration of printer
- Perform final installation checks
- Activate SAP ERP Central Component Extension Set
- Install additional languages
- Start and schedule SAP Load Generator



Lesson Objectives

After completing this lesson, you will be able to:

- Describe the steps needed to perform and configure TMS
- Describe the steps needed to configure profile parameters and printers
- Describe the steps to create a productive client
- Perform final installation checks
- Activate SAP ERP Central Component Extension Set
- Start and schedule SAP Load Generator

Business Example

ABC Limited is a petrochemical company that uses SAP to manage its data. The company installed the latest version of SAP system, SAP ERP Central Component. You, as the system administrator of the company, installed SAP ERP Central Component. As a necessary post-installation activity, you need to configure TMS, profile parameters, printers and create a productive client.

Post-Installation Activities for Transport Organizer

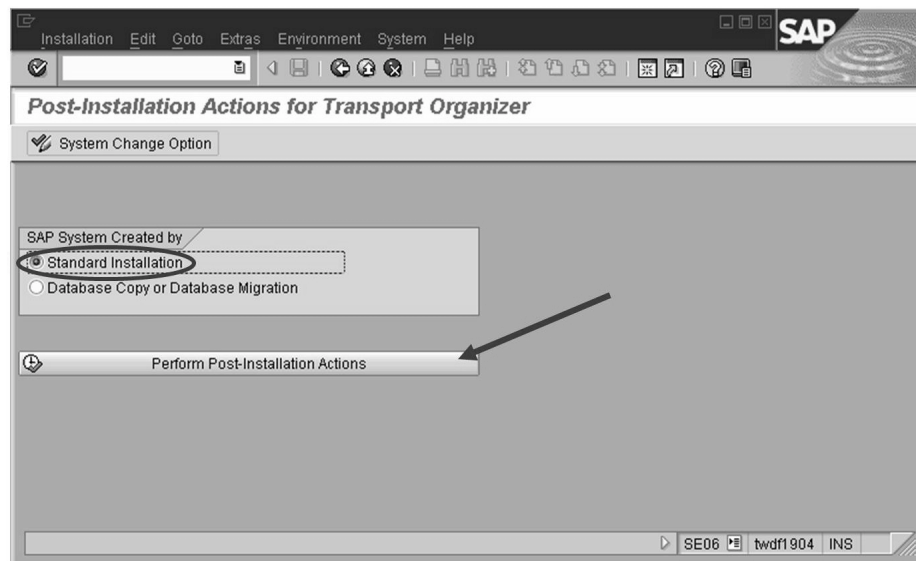


Figure 123: Post-Installation Activities for Transport Organizer

If you have installed your SAP system from the SAP CD, you don't have to configure Change and Transport System (CTS) after installation. Basic settings for the CTS are generated during the configuration of the Transport Management System (TMS).

If you have installed your SAP system as a copy of an existing SAP system, you must configure CTS after installation.

If you set up an SAP system that originated from a database copy using *Standard installation*, problems could arise when you upgrade the system or modify objects with Transport Organizer.

Select *Database Copy or Database Migration* if SAP ERP Central Component was created based on a copy. SAPinst provides utilities to copy and migrate databases.

Transport Management System (TMS) Configuration



Check and maintain
(if necessary) permissions
to directory /usr/sap/trans

On transport domain controller:

- Log on in client 000, DDIC (not SAP*)
- Start transaction STMS
- Transaction STMS in client 000 will:
 - Assign the SAP system as the transport domain controller
 - Create transport domain name DOMAIN_<SID>
 - Create transport group GROUP_<SID>
 - Create system user TMSADM in client 000
 - Create RFC destinations
 - Set up file DOMAIN.CFG in directory

Figure 124: TMS Configuration: Transport Domain

For additional information, see course ADM325.



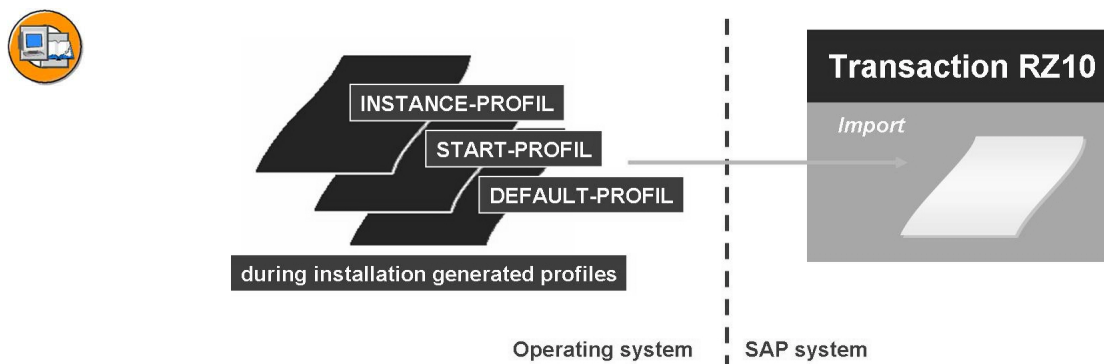
- **After establishing a transport domain:**
 - Create transport routes from the domain controller, using the default standard configurations
 - One-system landscape
 - Two-system landscape
 - Three-system landscape
- Start transaction STMS and choose Overview → Transport Routes, change mode, Configuration → Standard Configuration
- Set the system change options (transaction SE06)

Figure 125: TMS Configuration: Transport Routes

To create transport routes in transaction STMS, drag the appropriate SAP systems from the node area to the display area. To create a transport route between these SAP systems, navigate to *Overview* → *Transport Routes* and choose *Configuration* → *Standard Configuration*. Select *Single System* or *Development and Production System* or *Three Systems in group*. Choose *Save*.

For additional information, see course ADM325.

Performing basic operations



Start import using transaction RZ10:

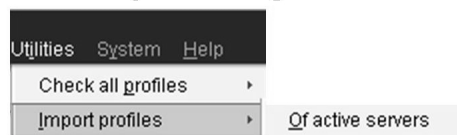


Figure 126: Import of Profiles

After the installation, the profile parameters are only present at file level. To use the profile administration, profiles must be imported into the database. During this import, the system performs a consistency check and a check of the way in which the parameters interact. Changes to profile parameters can then be performed in the system. The profile parameters are then stored in the database and are written back to the file system level. The changes only take effect when they are read by the system on a system restart.

Perform the administration and maintenance of profiles in transaction RZ10. In the first step, you import the profiles into the database by choosing *Utilities* → *Import Profiles* → *Of active servers*. After selecting the profile to edit, you can change individual profile parameters.

For more information, see course ADM100.

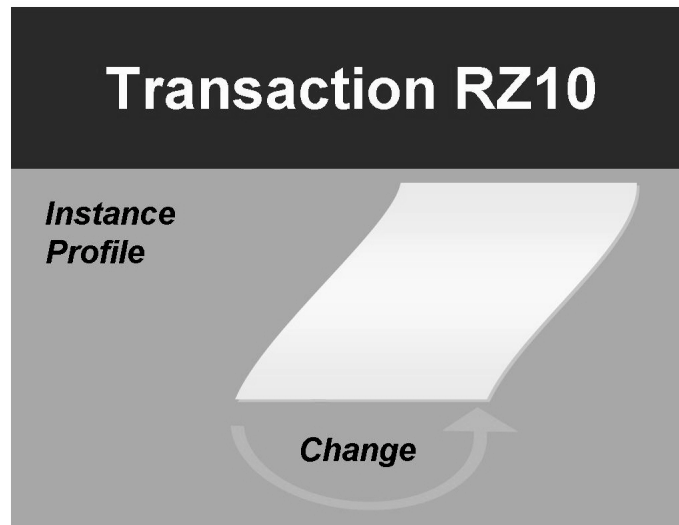


Figure 127: Adapt Number of Work Processes

SAPinst installs SAP systems with a minimum number of work processes, which are calculated using the following formula:

- minimum number of dialog work processes = 2
- minimum number of update work processes = 1
- minimum number of update2 work processes = 1
- minimum number of batch work processes = 2
- minimum number of enqueue work processes = 1
- minimum number of spool work processes = 1

SAP recommends that you adapt SAP profiles using transaction RZ10. Nevertheless, it is possible to change SAP parameters in the corresponding files on the operating system.

Set up Operation Mode

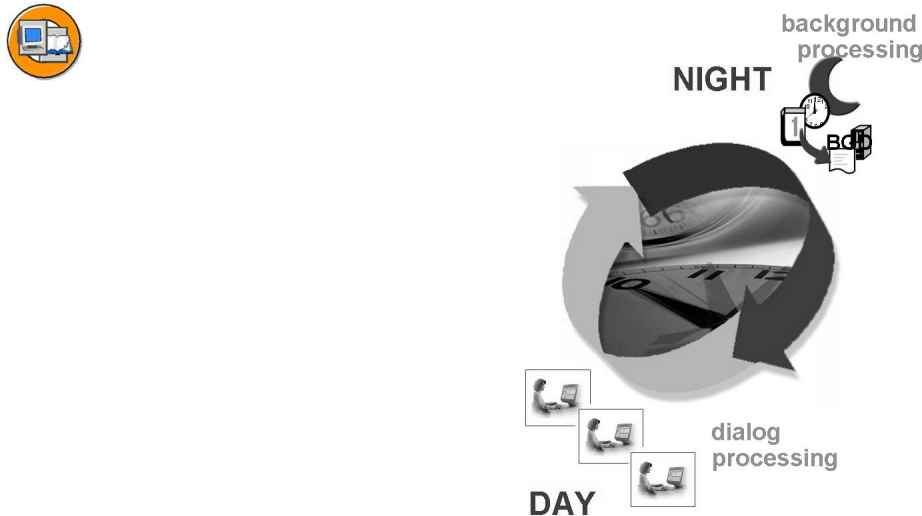


Figure 128: Set Up Operation Modes

Operation modes are set up in a number of steps:

- First, the operation modes are created as empty containers in transaction RZ04.
- Next, all active instances of the system are recorded and the work processes defined in the instance profile are assigned to the operation modes as default values.
- Next, distribute the individual operation modes in the total number of work processes taken from the instance profile. The distribution should be primarily made between the dialog and background work processes.
- In the timetable (transaction SM63), you specify the periods for which operation modes are valid and when the switch between operation modes should occur.

For more information, see course ADM100.

Schedule background jobs

Standard jobs are those background jobs that should be run regularly in a production SAP System. These jobs are usually jobs that clean up parts of the system, such as by deleting old spool requests. As of Release 4.6C, the Job Definition transaction (SM36) provides a list of important standard jobs, which you can schedule, monitor, and edit.



Job name (1) 11 Entries Found

Restrictions

✓ ✕ H H P

Component	Background Job Name	Job info
BC	SAP_CCMS_MONI_BATCH_DP	JOB FOR MONITORING
BC	SAP_COLLECTOR_FOR_JOBSTATISTIC	COLLECT VALUES FOR STATISTICS
BC	SAP_COLLECTOR_FOR_NONE_R3_STAT	NONE-R/3-STATISTIC-KOLLEKTOR
BC	SAP_COLLECTOR_FOR_PERFMONITOR	PERFORMANCE-COLLECTOR
BC	SAP_REORG_ABAPDUMPS	DELETE ABAP DUMPS
BC	SAP_REORG_BATCHINPUT	DELETE OLD BATCH INPUT FILES
BC	SAP_REORG_JOBS	DELETE OLD JOBS
BC	SAP_REORG_JOBSTATISTIC	DELETE OLD JOBSTATISTIC
BC	SAP_REORG_SPOOL	DELETE OLD SPOOLFILES
BC	SAP_REORG_UPDATERECORDS	DELETE OLD UPDATE REQUESTS
BC	SAP_REORG_XMILOG	DELETE XMI-LOG

11 Entries Found

Figure 129: Schedule background jobs

If you want to schedule all the standard jobs, choose *Default scheduling*. The system schedules all standard jobs along with their specified variants and intervals. See SAP note 16083 for more information on the standard jobs.

For further information on background scheduling, see course ADM100.

Basic Configuration: Additional Tasks



- Set up logon groups with transaction SMLG.
- Install printers with transaction SPAD.
- Configure system log with transaction SM21.

Load distribution allows you to dynamically distribute the SAP users to application server instances. Logon load balancing increases efficiency with respect to performance and the use of system resources for variously defined workgroups by distributing users across available application servers based on requirements for workgroup service and utilization. Set up logon groups with transaction SMLG.

The platform-independent SAP spool system is responsible for the output of forms and documents. All devices, servers, and so on that are involved in printing are defined and managed in spool administration (transaction SPAD). For more information refer to SAP Printing Guide in online documentation.

The SAP System logs all system errors, warnings, user locks due to failed logon attempts from known users, and process messages in the system log. There are two different types of logs created by the system log:

- Local Logs
- Central Logs

Use transaction SM21 to access the system log output screen. We recommend that you also maintain a central log file on a selected application server. Each individual application server then sends its local log messages to this server. The server that you designate to maintain the central log collects the messages from the other application servers and writes these messages to the central log. The central log consists of the active file and the old file. (The location of the active file is specified in the *rslg/central/file* ; the location of the old file is specified in the *rslg/central/old_file* profile parameter.)

For more information, see course ADM100.

Client Copy

SAPinst creates three ABAP clients during the installation, client 000, client 001, and client 066. Client 000 is the SAP reference client for ABAP. If you chose to install an ABAP+Java system in one installation run, AS Java was configured against client 001 during the installation.

Your production client must be a copy of the SAP reference client 000.



1. Maintain the new client with transaction SCC4
2. Activate kernel user SAP*
 - Set the profile parameter login/no_automatic_user_sapstar to 0
 - Restart the application server
3. Log on to the new client with kernel user SAP* and password PASS
4. Copy the client with transaction SCCL and profile SAP_CUST



Hint: Your production client must be a copy of the SAP reference client 000.

5. Check the log files with transaction SCC3
6. Create the required users. These users must have at least the authorizations required for user administration and system administration. Create a user SAP* with all required authorizations for this user. If you want to have other users for system administration, you can also create user SAP* without authorizations.
7. Deactivate kernel user SAP*
 - Reset login/no_automatic_user_sapstar to 1
 - Restart the application server

Need for Installation Checks

Installation check checks the consistency of the newly installed system. The following checks are performed:



- Completeness of installation
- Version compatibility between the SAP release and the operating system
- Accessibility of the message server
- Availability of all work process types
- Information about the enqueue server and the update service



- Choose **Tools** → **Administration** → **Administration** → **Installation check** or transaction **SICK / SM28**

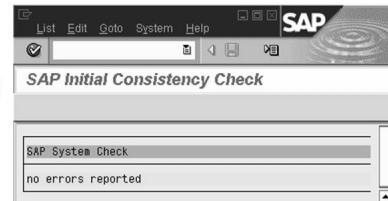


Figure 130: Installation Checks

The consistency check determines inconsistencies in your system. This function is also called automatically when you start your system or start an application server.

The installation check checks whether the following are true:

- The release number in the SAP kernel matches the release number stored in the database system.
- The character set specified in the SAP kernel matches the character set specified in the database system.
- The critical structure definitions defined in both the data dictionary and the SAP kernel are identical. The structures that are checked include structures SYST, T100, TSTC, TDCT, TFDIR, and others.

Install Additional Languages



1. Classification of the language transaction SMLT:

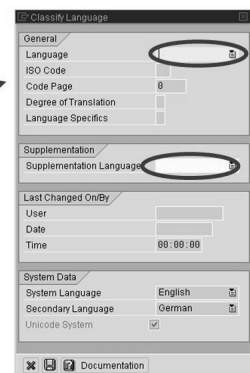


Figure 131: Installing Additional Languages (1/3)

The procedure to classify a language is:

- Select *Classify Language* or choose *Language* → *Classify*.
- In the next dialog box, choose the language that you want to import and the corresponding supplementation language.
- The imported languages must be defined in the default profiles so that you can log on in these languages. The relevant parameter is `zcsa/installed_languages`.

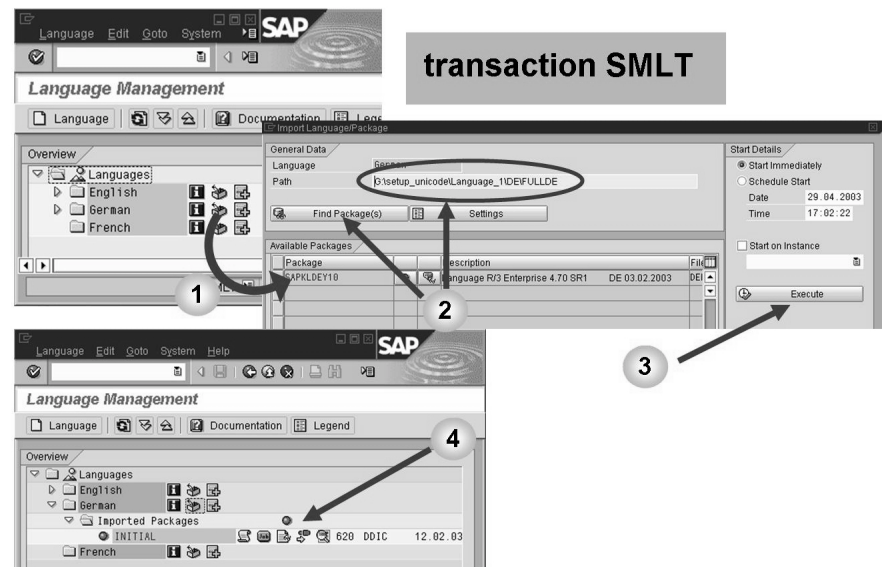


Figure 132: Installing Additional Languages (2/3)

The English and German languages are available in all newly installed systems. You do not need to import them into newly installed systems.

The procedure to import language packages is:

- Select the language for which you want to install extra packages and choose *Language* → *Import package*.
- Enter the path for the language packages. Choose *Find package(s)* to search for any available packages in the path you have entered. The green, yellow, and red lights next to the packages indicate whether you can import them:
 - Green light: all import conditions are met
 - Yellow light: there are warnings
 - Red light: the package cannot be imported because checks have detected errors
- Select one or more language packages with green or yellow lights for import. Specify a start time and an optional target server for background processing and choose *Execute* to import the language packages. This action schedules a background job that performs the import.
- Check the log files.

If an action terminates for technical reasons, you can restart it.

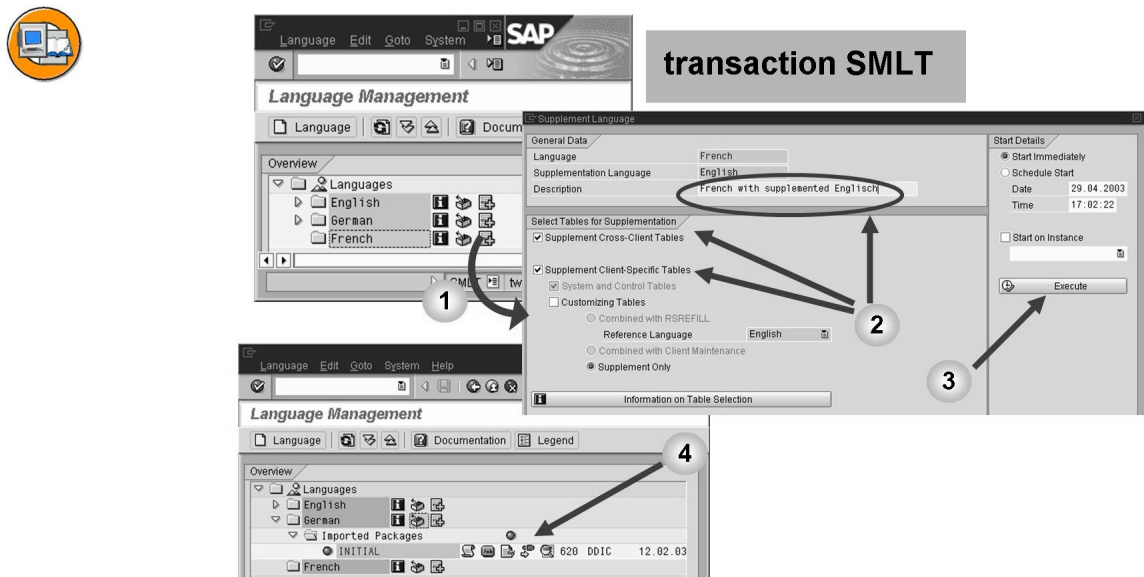


Figure 133: Installing Additional Languages (3/3)

Use the language supplementation function to fill in the gaps in a language that have not been translated completely. Supplementation actions are client-specific. The languages are supplemented in the client to which you are logged on.

The procedure to schedule language supplementation is:

- Choose *Language* → *Supplement Language*.
- Enter conditions that control which tables are selected for supplementation. The fields are set with SAP default values that depend on the logon client. Client-specific customizing tables are subject to special handling during language imports.
- Enter a start time and choose *Execute*. This schedules a background job that performs the supplementation.
- Monitor the supplementation and check log files.

See course ADM102 for more information on importing languages.

Activation of SAP ERP Central Component Extension Set

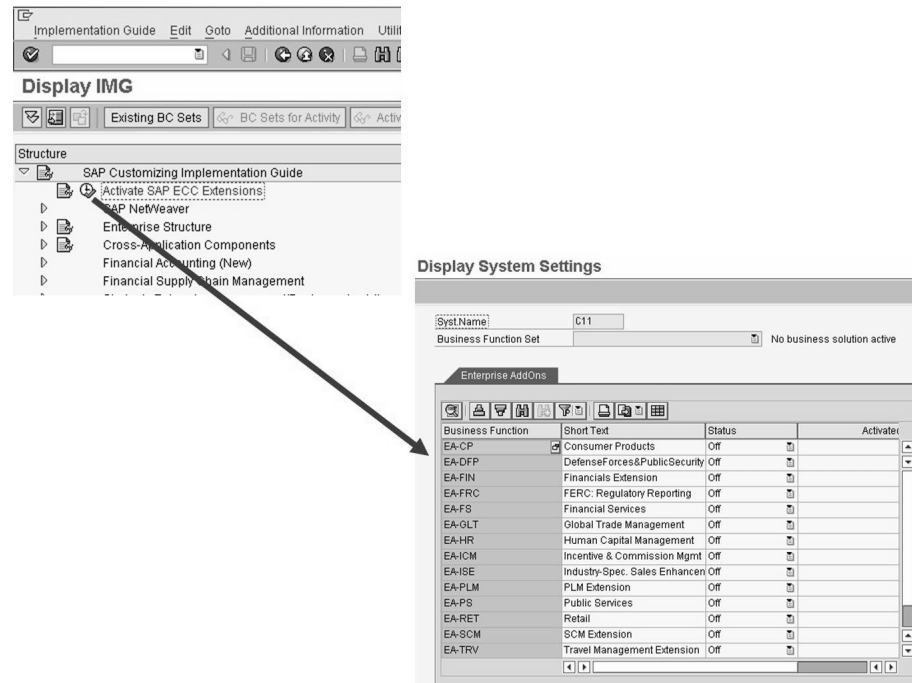


Figure 134: Activation of SAP ERP Central Component Extension Set

Activation of extension set:

1. Call transaction SPRO (IMG).
2. Choose *SAP Reference IMG*.

From the technical point of view, SAP ERP Central Component Extensions are delivered and installed as part of an Add-On for SAP ERP Central Component, which is SAP ERP Central Component Extension Set. Client-independent activation switches allow you to use the functions contained in SAP ERP Central Component Extension Set components.

You activate the functions by selecting the relevant activation switch in the IMG activity, Activation switch for the SAP ERP Central Component Extension Set. After activating, the Business Transaction Events (BTEs) and BAdI implementations marked as SAP-internal and already activated in a static way are also executed at runtime. After the activation, additional entries display in the tree structures of IMG, Application Component Hierarchy (ACH), and the default SAP Easy Access Menu based on the component activated.

Generally, you cannot deactivate an activated switch because data is updated in a different way than it would be if the relevant component was inactive. This depends on the component and the actions performed in the system after activation. Before you activate parts of SAP ERP Central Component, ensure that no clients are marked as **productive** in the system: Check the T000 table to see whether an entry exists with CCCATEGORY = "P". Change the setting to "**T**" and then activate the switches. Afterwards, reset the setting in the T000 table.

SAP Load Generator



Transaction: SGEN

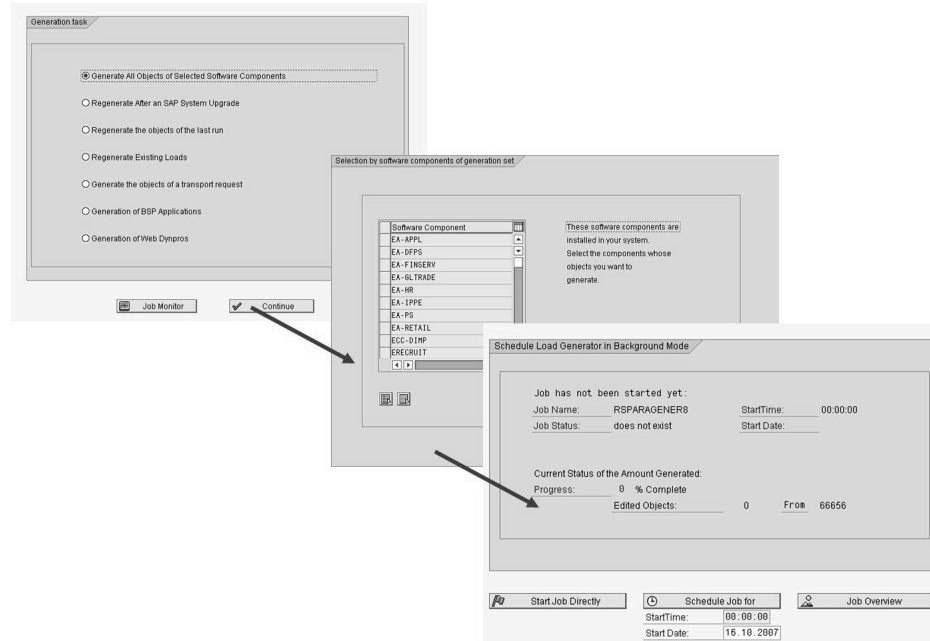


Figure 135: SAP Load Generator (SGEN)

You can use transaction SGEN to generate the ABAP loads of a number of programs, function groups, classes, and so on.

Before the generation starts, consecutive screens give you options about the:

- Task of the generation
- Selection of generation set (= number of objects to be generated)
- Use of parallel generation

The generation is started on the job monitor screen. In addition, this screen gives you information about current generation jobs or jobs that may have already run, such as predictions about the duration of the generation.

Exercise 10: Initial ABAP Configuration

Exercise Objectives

After completing this exercise, you will be able to:

- Perform initial ABAP post-installation activities

Business Example

You are the system administrator of ABC Limited, a petrochemical company. You installed the latest version of SAP, SAP ERP Central Component. Now, you have to perform the post-installation activities of CTS and TMS.

Task 1:

Perform the initial ABAP post-installation activities.

1. Perform post-installation actions in transaction SE06.
2. Configure TMS.

Task 2:

Import and change SAP profiles.

1. Import all profiles into SAP ERP Central Component.
2. Change the values of the parameters related to the number of work processes (rdisp/wp_no_*). For example, enter twice the number for dialog and batch work processes.

Task 3:

Configure operation modes.

1. Set up operation modes.
2. Maintain a timetable for operation mode.

Task 4:

Check standard background jobs.

1. Schedule the standard background jobs.

Continued on next page

Task 5:

Installation check and activation of the SAP ERP Central Component Extension Set.

1. Perform the installation check.
2. Activate the SAP ERP Central Component extension set.

Task 6:

Perform a client copy.

1. Create a new client in SAP ERP Central Component.
2. Log on to your new client, and start a local client copy with the SAP_CUST in background profile (start time: tomorrow 8 AM).

Task 7:

SAP Load Generator

1. Start SAP Load Generator and schedule it for tomorrow 8 PM.

Solution 10: Initial ABAP Configuration

Task 1:

Perform the initial ABAP post-installation activities.

1. Perform post-installation actions in transaction SE06.
 - a) Proceed as described in the training material in section *Post-Installation Activities for Transport Organizer* . Use the setting *Standard Installation*. Do not select *Database Copy or Database Migration*.
2. Configure TMS.
 - a) Proceed as described in the training material in section *Transport Management System (TMS) Configuration* .

Task 2:

Import and change SAP profiles.

1. Import all profiles into SAP ERP Central Component.
 - a) Call profile maintenance using transaction RZ10. You can import all profile files together by choosing *Utilities* → *Import Profiles* → *Of active servers*. A check log displays the result of the import.
2. Change the values of the parameters related to the number of work processes (rdisp/wp_no_*). For example, enter twice the number for dialog and batch work processes.
 - a) To change the values of individual parameters, select the instance profile and change this in extended maintenance.

Continued on next page

Task 3:

Configure operation modes.

1. Set up operation modes.
 - a) Create operation modes in transaction RZ04.
 - b) Choose *Create* and enter the name. Choose *Save*.
 - c) Switch to the Instances/Operation Modes view by choosing *Instances/Operation Modes*.
 - d) Define work process distribution for all instances of your system by choosing *Settings* → *Based on current status* → *New instances* → *Create*.
 - e) To change the distribution of work processes for the operation modes of instances, double-click the operation modes entries. Change and then save the distribution of work processes in the Maintain Work Process Distribution window by choosing “+” and “-”. After you have changed the distribution for all operation modes and instances, choose *Save*.
2. Maintain a timetable for operation mode.
 - a) Schedule operation modes using the operation mode calendar using transaction SM63.
 - b) Choose *Normal Operation* and *Change*. Select the start and end of the period of the operation mode by double-clicking the appropriate lines.
 - c) Choose *Assign* and then select *Operation mode*. After you have assigned the entire 24-hour period to your operation modes, choose *Save*.

Task 4:

Check standard background jobs.

1. Schedule the standard background jobs.
 - a) Choose transaction SM36 and choose *Goto* → *Standard jobs*. To schedule standard jobs, choose *Default scheduling*.

Task 5:

Installation check and activation of the SAP ERP Central Component Extension Set.

1. Perform the installation check.
 - a) Proceed as described in the training material in section *Need for Installation Checks*.

Continued on next page

2. Activate the SAP ERP Central Component extension set.
 - a) Proceed as described in the training material in section *Activation of SAP ERP Central Component Extension Set*.

Task 6:

Perform a client copy.

1. Create a new client in SAP ERP Central Component.
 - a) Create a new client named **100**. Start transaction SCC4.
 - b) Switch to change mode. Choose *New Entries*.
 - c) Enter **100** in the *Client* field. Enter a client description and a city. Adapt the change options to customize.
2. Log on to your new client, and start a local client copy with the SAP_CUST in background profile (start time: tomorrow 8 AM).
 - a) Log on to your new client with user **SAP*** and password **pass**. Choose *Tools → Administration → Administration → Client Administration → Client Copy → Local Copy*.
 - b) Select client 000 as source. Choose *Schedule as Background Job* (start time: tomorrow 8 AM).

Task 7:

SAP Load Generator

1. Start SAP Load Generator and schedule it for tomorrow 8 PM.
 - a) Proceed as described in the training material in section *SAP Load Generator*.



Lesson Summary

You should now be able to:

- Describe the steps needed to perform and configure TMS
- Describe the steps needed to configure profile parameters and printers
- Describe the steps to create a productive client
- Perform final installation checks
- Activate SAP ERP Central Component Extension Set
- Start and schedule SAP Load Generator

Lesson: Initial Java Configuration

Lesson Overview

This lesson describes how to perform the initial Java configuration.

- Run the Configuration Wizard
- Verify the Java settings



Lesson Objectives

After completing this lesson, you will be able to:

- Run the Configuration Wizard
- Describe the steps to verify the AS Java configuration

Business Example

ABC Limited, a petrochemical company, installed the latest version of SAP system, SAP ECC. You are the system administrator in the company. As a necessary post-installation activity for Java based systems, you need to perform some initial Java configuration steps.

Run the Configuration Wizard

When you have installed a SAP NetWeaver system, the Configuration Wizard makes technical settings which are required for the technical processing of a system or a technical scenario, e.g. connectivity, service users, usage-type initialization.

You make the technical settings with the Configuration Wizard, immediately after installing a SAP NetWeaver system. The configuration wizard is part of the SAP NetWeaver administrator. The SAP NetWeaver installation guide contains detailed information about which configuration tasks to choose.

The configuration wizard makes the technical settings (technical configuration) using scenario-based templates, e.g. for Process Integration (PI), Application Server Java (AS Java), etc.. Automated configuration tasks allow you to enter the same data centrally, once only, e.g. connectivity, service users, etc. The system distributes this data automatically in the SAP NetWeaver system.

You cannot use the configuration wizard after an upgrade, an Add-In installation and the enablement of additional usage types.



Caution: You can run the Configuration Wizard **only once** and **only directly** after you installed and patched the system.



<http://<server>:<port>/nwa> (e.g. <http://twdf010101.wdf.sap.corp:50000/nwa>)

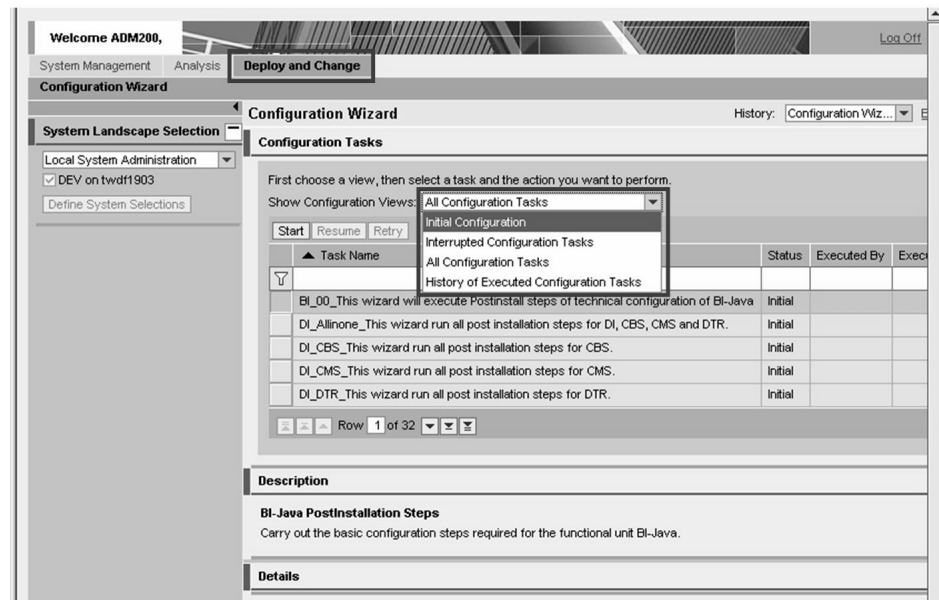



Figure 136: Configuration Wizard



1. Before you run the configuration wizard, make sure you have applied the latest kernel and support packages to your system.
2. Call <http://<server>:<port>/nwa> in a browser, and logon with a Java administrator user.
3. Navigate to *Deploy & Change* tab and choose *Configuration Wizard*.


Note: The system displays the scenario and its configuration tasks, according to your selection during the installation.
4. Select a task from the list and choose *Start*.
5. Enter the required data and choose *Next*.
6. Follow the screens. The system makes the necessary settings.
7. The system reports any configuration errors.

There are different configuration views available:

- **All Configuration Tasks**

This view is displayed when you first enter the configuration wizard. It lists all configuration tasks available for your SAP NetWeaver system.

- **NetWeaver Initial Configuration**

This view includes the configuration steps for all usage types you installed.

- **Interrupted Configuration Tasks**

If you cancelled a configuration and want to resume it later, choose the configuration task and then Resume

- **History of Executed Configuration Tasks**

This view lists all configuration tasks that have been executed previously.

For more information on the Configuration Wizard and its limitations, see SAP Note 923359.

Verifying AS Java Configuration

There are some recommended configuration procedures after you set up an AS Java system.



- Create a second administrator user
- Check and configure the necessary communication ports
- Check additional configuration settings:
 - parameters depending on the size of the AS Java
 - parameters depending on the expected workload
- Configure security settings

To prevent locking the administrator in case you do change its password and forget to update the entry secure storage, we also recommend you create a second administrator user after installing an AS Java based system.

When you install a Java instance or create an additional server process, the AS Java assigns default values to the communication ports. In case some of these ports are being used by another program, you will have to manually assign a different value to

the corresponding port. If necessary, you can change the assigned join port of a server process, on which the server process listens for connections (for example, when the port assigned to the cluster element is already in use by another program).

1. Start the J2EE Engine Visual Administrator.
2. Choose *Server/Dispatcher* → *Kernel* → *Cluster Manager* → *Properties* tab.
3. Use element *joinPort* to specify the port on which the server process listens for connections. The port value must not be: greater than 65535, less than 1024, or a “well known” port. This property is available only on server processes.
4. Choose *Save* to save your changes and restart the cluster node.

Additional Configuration

The additional cluster configuration that you can perform can be divided into two types of configuration:

- **Required configuration:**

This includes the configuration of some additional parameters depending on the size of the AS Java, the expected workload, and so on. Although referred to as “required configuration”, we recommend that you maintain these settings only after careful consideration and testing.

- **Connections Manipulation** – configure the maximum number of user connections that the dispatcher can handle simultaneously and a timeout for establishing these connections
- **Setting Service Load Timeout** – configure the maximum time for which the services on a cluster node have to be started.

- **Optional configuration:**

Perform the optional configuration only in case there are some problems within the AS Java operation. Otherwise, we recommend that you do not reconfigure the default settings.

- **Thread system configuration** – to optimize the reallocation of system resources, we recommend that you closely monitor and if necessary, reconfigure the AS Java thread system
- **Startup and Shutdown** – configure the manner in which the cluster elements will be started up and shut down
- **Configuring the cluster communication mechanisms** - Configuring the Message Server, Session and Lazy Communication
- **Configuring the services stop and event time-outs**

The management of client connections in the cluster is represented in AS Java by the **Connections Manipulator Manager**. This manager has an indirect connection with all services running on the dispatcher that receive or send data outside the cluster using a socket. Here you can configure the maximum number of user connections that a dispatcher will be able to process at a certain moment, a timeout for these connections, and the connections checks.

Go to the **Service Manager** to change the maximum time for which all services on a cluster node have to be started. If there are still services that have not started after this timeout elapses, the Service Manager assumes that all services are started and the system continues with the other startup processes. The timed-out services will continue their startup process in the background. A notification for each timed-out service is logged in the log files.

The AS Java **thread system** is responsible for handling system and client threads. It comprises two managers – Thread Manager and Application Thread Manager. All threads in which AS Java system operations are executed (core, services, and so on) use system threads supplied by the Thread Manager. Application Thread Manager supplies the threads in which the client application's code is executed.

Use the **Cluster Manager** to configure the cluster to work in the manner of a full parallelism, or to set its startup/shutdown to be serialized. For your configuration purposes, use the properties provided by the AS Java Cluster Manager. By default, the cluster elements start up and shut down in full parallelism mode, that is, simultaneously, without waiting for each other.

Message server communication is established through the message server that is used as a dispatcher when sending messages. The advantage of this way of communication is that it provides a failover function that avoids the loss of information. Cluster Manager provides properties to configure the default settings of the message server communication.

Session communication is used to exchange information between the dispatcher and a server in one cluster group. Cluster Manager provides properties to modify the default settings of the session communication

The **lazy communication** mechanism is used automatically by the Cluster Manager to quickly exchange large amounts of information between two server processes without using the message server as an intermediary. By default, lazy communication

is enabled only for a predefined list of services. You can enable a mechanism by which lazy communication is activated when a previously defined amount of objects is transferred between two parties for a defined time interval.



Hint: We recommend that you do not modify the default message server communication, the default session communication and the default lazy communication settings unless you are officially advised to do so by SAP support.

The **Service Stop Timeout** in the Service Manager is responsible for the maximum time which the Service Manager waits for each service to stop when the cluster node is shutting down. If this timeout has elapsed and the service has not managed to stop, the Service Manager continues with the cluster node shutdown. A notification for each timed-out service is logged in the log files.

The **Event Timeout** in the Service Manager specifies the time that the Service Manager waits for the event to be processed before undertaking another action. If you want to stop a service, a `beforeServiceStopped` event is thrown first. Then it waits for all components to process the event. That is, the components are notified that the service will be stopped and they should undertake the appropriate actions, such as unregistration, and so on. After the specified timeout, the service is stopped. The default value of the event timeout is 20 seconds. If after 20 seconds there are still components that have not processed the event, the system will not wait for them and the service will be stopped. We recommend modifying this value only if you have problems stopping the service. Otherwise, we recommend that you do not reconfigure the default timeout.

Configuring security

Configuring security – you may also need to configure some additional aspects of the server's security environment. Providing security for the applications that run on the AS Java is also an important aspect in the overall architecture of the SAP NetWeaver Application Server. You need to be able to identify the users that access the server and you need to protect access to individual resources. In addition, confidentiality is also important when dealing with sensitive information.

To configure the server's security environment, use the following services in the Visual Administrator:

- **Security Provider Service**

The Security Provider service is the primary service needed for maintaining the server's security environment. Use this service to:

- Choose cryptographic providers

- Select the data source
- Maintain users and groups
- Assign security roles
- Restrict access to resources
- Set up your login modules to use
- Maintain protection domains
- Monitor user sessions

- **User Storage Service**

The Security Provider service uses the User Storage service to determine and access the chosen data source, either the DBMS user store or the UME. There are no administration tasks directly associated with this service, however you can change the properties that apply.

- **Key Storage Service**

Use the Key Storage service to maintain the server's personal security information where cryptography is supported, for example, when using the SSL protocol. You can create the server's key pairs, generate the corresponding certificate signing requests, and maintain the list of trusted Certification Authorities (CAs) associated with the key pair.

- **SSL Provider Service**

Use this service to select the key pair that the server is to use for SSL. If you are using client certificates for user authentication, then you also maintain the list of CAs who you trust as issuers of client certificates.

- **Certificate Revocation Check Service**

With the AS Java, you can use certificate revocation lists (CRLs) to make sure that a given certificate has not been revoked by the issuing Certificate Authority (CA).

- **SAML Authentication Service**

This service handles the user authentication for applications that use the Security Assertion Markup Language (SAML). It requests the SAML assertions from the corresponding SAML source site for a user and processes them.

- **Secure Storage Service**

Use this service to maintain the AS Java's secure storage area, which is a storage area on the server that applications or services can use to store security-critical information such as passwords. Data stored in this area is encrypted and can only be accessed and decrypted by the corresponding application.

- **Destination Service**

Applications or services can establish connections to other services. When using such connections, you need to specify the remote service's address and the user authentication information to use for the connection. Many applications use the Destination service for this purpose.

Exercise 11: Perform the Necessary Post-Installation Activities

Exercise Objectives

After completing this exercise, you will be able to:

- check the initial Java settings

Business Example

You are the system administrator of ABC Limited, a petrochemical company. You installed the latest version of SAP, SAP ERP Central Component using scenario XSS. Now, you have to check the initial Java setting.

Task:

Call the Configuration Wizard in your SAP NetWeaver Portal system and start the initial configuration for your installed scenario/usage type.

1. Call the Configuration Wizard and logon.
2. Start the initial configuration for your installed scenario/usage type.

Solution 11: Perform the Necessary Post-Installation Activities

Task:

Call the Configuration Wizard in your SAP NetWeaver Portal system and start the initial configuration for your installed szenario/usage type.

1. Call the Configuration Wizard and logon.
 - a) Call <http://<server>:<port>/nwa>.
 - b) Logon with Java administrator user *Administrator* and the master password given during installation.
 - c) Navigate to *Deploy & Change* tab and choose *Configuration Wizard*.
2. Start the initial configuration for your installed szenario/usage type.
 - a) Select the view *Initial Configuration* and a task from the list, which fits to (one of your installed Java Usage types).
 - b) Choose *Start*
 - c) Enter the required data and choose *Next*
 - d) Follow the screens. The system makes the necessary settings.



Lesson Summary

You should now be able to:

- Run the Configuration Wizard
- Describe the steps to verify the AS Java configuration



Unit Summary

You should now be able to:

- list relevant post installation steps
- Describe the steps to install SAP License
- Describe the steps to install SAP online documentation
- Describe the steps to install and configure SAProuter
- Describe the steps needed to perform and configure TMS
- Describe the steps needed to configure profile parameters and printers
- Describe the steps to create a productive client
- Perform final installation checks
- Activate SAP ERP Central Component Extension Set
- Start and schedule SAP Load Generator
- Run the Configuration Wizard
- Describe the steps to verify the AS Java configuration

Related Information

- SAP Service Marketplace, <http://service.sap.com/instguides>
- Courses: ADM100, ADM102, ADM200, ADM325, ADM940, ADM960



Test Your Knowledge

1. What is the procedure to perform a full backup for Windows?

2. Name the three steps to install SAP online documentation.

3. What is the need for SAProuter?

4. After the installation of the central instance, a temporary license is active for six weeks.

Determine whether this statement is true or false.

- ☐ True
☐ False

5. SAProuter can be started as a demon under UNIX and as a service under Windows.

Determine whether this statement is true or false.

- ☐ True
☐ False

6. Identify the activity that is not performed by Installation Check.

Choose the correct answer(s).

- ☐ A Completeness of installation
- ☐ B Version compatibility
- ☐ C Accessibility of the message server
- ☐ D Network security

7. What are the steps needed to install additional languages?

8. What are the steps needed to perform a client copy?

9. You cannot use the SGEN transaction to generate the ABAP loads of a number of programs, function groups, and classes.

Determine whether this statement is true or false.

- ☐ True
- ☐ False

10. You cannot activate the functions contained in SAP ECC Extension Set.

Determine whether this statement is true or false.

- ☐ True
- ☐ False

11. The installation check checks, among others, whether the release number in the SAP kernel matches the one stored in the database system.

Determine whether this statement is true or false.

- ☐ True
- ☐ False

12. You have installed a SAP NetWeaver system. Which tool makes technical settings which are required for the technical processing of a system or a technical scenario?

Choose the correct answer(s).

- ☐ A Template Wizard
- ☐ B Configuration Wizard
- ☐ C Postinstaller
- ☐ D Configuration Template Installer



Answers

1. What is the procedure to perform a full backup for Windows?

Answer:

1. Save the Registry.
2. Save system state data.
3. Back up all SAP-specific and database-related directories.

2. Name the three steps to install SAP online documentation.

Answer: Install the help files. Customize setup variants for online help. Install a web browser or viewer.

3. What is the need for SAProuter?

Answer: SAProuter increases network security, simplifies network configuration, and allows you to make indirect network connections. SAProuter is required for remote support connections.

4. After the installation of the central instance, a temporary license is active for six weeks.

Answer: False

After the installation of the central instance, a temporary license is active only for four weeks.

5. SAProuter can be started as a demon under UNIX and as a service under Windows.

Answer: True

SAProuter is started as a demon under UNIX and as a service under Windows. This allows to start saprouter automatically after a restart of your server.

6. Identify the activity that is not performed by Installation Check.

Answer: D

The SAProuter software, in the standard SAP kernel, increases network security.

7. What are the steps needed to install additional languages?

Answer:

1. Classifying the language.
2. Scheduling of language transport.
3. Scheduling of language supplementation.

8. What are the steps needed to perform a client copy?

Answer:

1. Maintain the client in table T000.
2. Copy the client.
3. Check log files.

9. You cannot use the SGEN transaction to generate the ABAP loads of a number of programs, function groups, and classes.

Answer: False

You can use transaction SGEN to generate the ABAP loads of a number of programs, function groups, and classes.

10. You cannot activate the functions contained in SAP ECC Extension Set.

Answer: False

You activate the functions by selecting the relevant activation switch in the IMG activity, "Activation Switch for SAP ERP Central Component Extension Set".

11. The installation check checks, among others, whether the release number in the SAP kernel matches the one stored in the database system.

Answer: True

The installation check determines inconsistencies in the system.

12. You have installed a SAP NetWeaver system. Which tool makes technical settings which are required for the technical processing of a system or a technical scenario?

Answer: B

The Configuration Wizard is responsible for technical settings after the installation which are required for the technical processing of a system or a technical scenario, e.g. connectivity, service users, usage-type initialization.

Unit 7

Further Software Lifecycle Tasks

Unit Overview

This Unit provides information about software lifecycle tasks you may need to execute at any time after installing or upgrading to SAP ECC 6.0. For scaling your SAP system you may want to install Dialog Instances for your existing SAP system. To enhance an existing system with additional functions you may need to install additional Usage Types or implement SAP ERP Enhancement Packages. The standalone Gateway is needed only in some specific scenarios.



Unit Objectives

After completing this unit, you will be able to:

- Install a Dialog Instance
- install an additional Usage Type
- explain how to install an SAP ERP Enhancement Package
- Install a standalone SAP Gateway instance

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Lesson: Dialog Instance Installation

Lesson Overview

This lesson describes how to install a Dialog Instance (ABAP, Java and ABAP+Java).



Lesson Objectives

After completing this lesson, you will be able to:

- Install a Dialog Instance

Business Example

ABC Limited, a petrochemical company, uses SAP to manage its data. The company plans to install the latest version of SAP , SAP ERP Central Component (SAP ECC), to use the functions delivered with the extension set of SAP ERP Central Component . As the system administrator of ABC, you need to install SAP ERP Central Component . You have installed SAPinst and the ABAP Central Instance. Now you need to install the Dialog Instance.

Installing a Dialog Instance

Start sapinst.exe as explained in the Introducing SAPinst lesson.

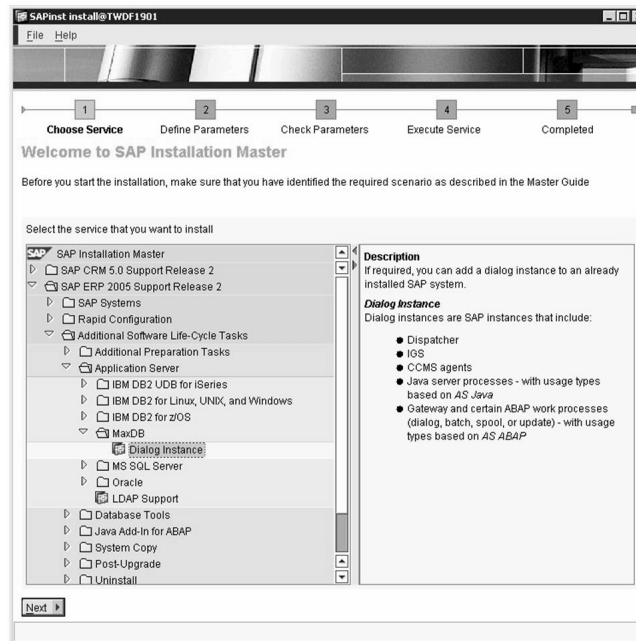


Figure 137: Dialog Instance Installation 1/9

On the SAPinst “welcome screen” choose the service to install e.g. *Dialog Instance*.

Navigate to *SAP ERP 2005 Support Release 2* → *Additional Software Life-cycle Tasks* → *Application Server* → *MaxDB* → *Dialog Instance*.

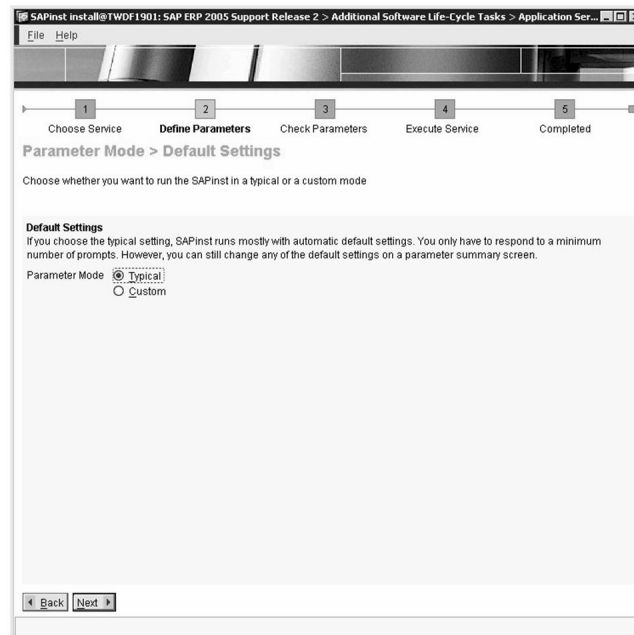


Figure 138: Dialog Instance Installation 2/9

Choose the Parameter Mode. You can choose between *custom* or *typical*. In most cases you select *typical*. Before starting the installation you get an summary screen and you can change the predefined settings to your needs.



Figure 139: Dialog Instance Installation 3/9

Enter/choose the central *profile directory* of your system.

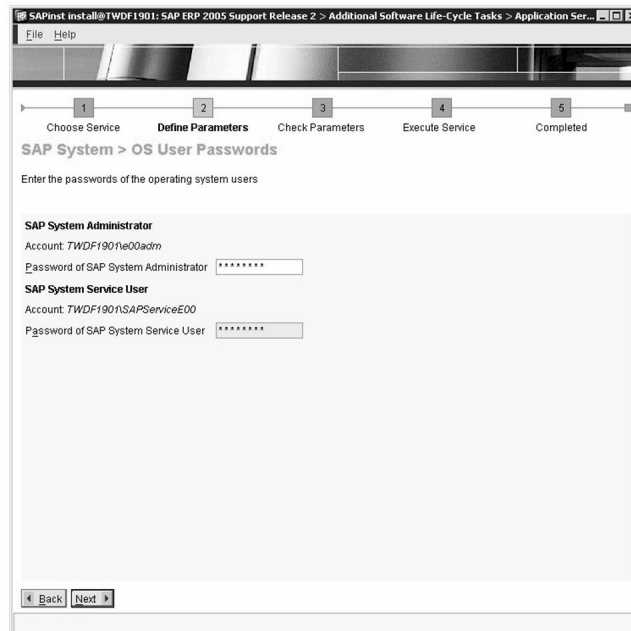


Figure 140: Dialog Instance Installation 4/9

For Windows based system you have to enter the passwords for users *<sid>adm* and *SAPService<SID>*.



SAPinst t00adm@TWDF1901: SAP ERP 2005 Support Release 2 -> Additional Software Life-Cycle Tasks -> Application S...

File Help

1 Choose Service 2 **Define Parameters** 3 Check Parameters 4 Execute Service 5 Completed

Media Browser > Software Package Request

Enter the location of the required software packages

Software Package(s)

Media Name	Package Location	Copy Package To
Java Component NW2004...	G:\ADM110_ECC6_SR2_DVD1SA...	Browse...

Additional Information

SAPinst will detect the required software packages on the media and check the corresponding package identification files LABEL.ASC.

If you want to copy the media to your local disk, enter the target location in the Copy Package To column.

Cancel OK

Only: Java or ABAP+Java dialog instance

Figure 141: Dialog Instance Installation 5/9

This screen only appears during the installation of an Java dialog instance or an ABAP+Java Dialog instance. Enter the location for the Java DVD.



Figure 142: Dialog Instance Installation 6/9

Enter the location of the Kernel DVD.



Figure 143: Dialog Instance Installation 7/9

The parameter summary screen displays the input or default parameter. These parameters are used by SAPinst in the processing phase. It is possible to change the parameters now to your needs. By choosing *start* SAPinst changes from the input phase to the processing phase.



Figure 144: Dialog Instance Installation 8/9

This screen the step *execute service*, which means that SAPinst start the dialog instance installation.

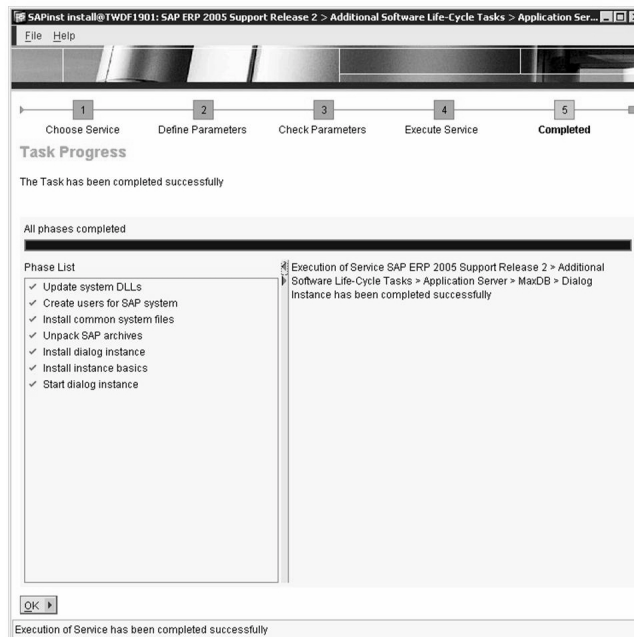


Figure 145: Dialog Instance Installation 9/9

Now the installation is successfully finished and the new dialog instance can be used in environment.

Congratulations!! You have just installed a Dialog Instance.

For more information on installing additional Dialog instances, see the installation manuals Installation Guide: Additional Instances on Windows/Unix/iSeries found on the SAP Service Marketplace (<http://service.sap.com/instguides>).

Exercise 12: Install a Dialog Instance

Exercise Objectives

After completing this exercise, you will be able to:

- Install a dialog instance

Business Example

ABC Limited is a petrochemical company that wants to install SAP ERP Central Component. You, as the system administrator of ABC Limited, have installed the central instance. Now you need to install a dialog instance.

Task:

Optional: Install the dialog instance on the server you are using for the training, for example, on twdf####.

1. Restart SAPinst and start the installation.

Solution 12: Install a Dialog Instance

Task:

Optional: Install the dialog instance on the server you are using for the training, for example, on twdf####.

1. Restart SAPinst and start the installation.
 - a) Proceed as described in the lesson.



Lesson Summary

You should now be able to:

- Install a Dialog Instance

Lesson: Installation of Additional Usage Types

Lesson Overview



Lesson Objectives

After completing this lesson, you will be able to:

- install an additional Usage Type

Business Example

Your company uses the latest version of SAP ERP, SAP ERP 6.0 with the delivered self services XSS. To use the self services a SAP NetWeaver Portal is installed in your system landscape. Additionally to the ERP functions, you decided to install BI functions including BI-Java. Usage type BI-Java can be installed on your existing SAP NetWeaver Portal using *JSPM*. After a while your company wants to introduce additional ERP function like Biller Direct or Learning Solution. For this scenario you can extend your existing ABAP based SAP ECC 6.0 system with usage type AS-Java and e.g. AS-Java based usage type BD. In this case the installation tool *SAPinst* offers you the possibility to implement the new usage types.

Overview: Installing an additional Usage Type

There are two different tools available to integrate an additional usage type. Depending on your existing system (installed usage type) you use either the installation tool *SAPinst* or Java Support Package Manager *JSPM* to implement additional Usage Types.



Installing an additional Usage Type(UT):

Using SAPinst

- Example: installing AS Java or AS Java based UT for existing AS ABAP based system
- Installation sequence:
 1. Installing Central Services Instance Java Add-In
 2. Installing Database Instance Java Add-In
 3. Installing Central Instance Java Add-In

Using JSPM

- Example: installing additional AS Java based UT for existing AS Java based System

Figure 146: Installing an additional Usage Type

Installing an additional Usage Type with SAPinst

The installation tool *SAPinst* is used to install usage type AS-Java or any AS-Java based usage type (e.g. Biller Direct) to your existing AS ABAP based system.

The installation is separated in three steps:

1. Installing Central Services Instance Java Add-In
2. Installing Database Instance Java Add-In
3. Installing Central Instance Java Add-In

Installing Central Services Instance (SCS) Java Add-In

As a first step you start the installation of *Central Services Instance (SCS) Java Add-In*.

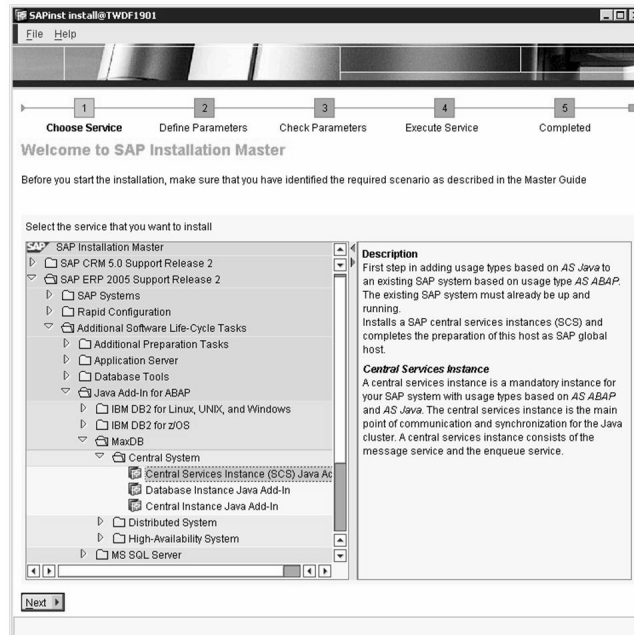


Figure 147: Additional Usage Type with SAPinst 1/19

In SAPinst Welcome screen choose *Central Services Instance (SCS) Java Add-In*.



Figure 148: Additional Usage Type with SAPinst 2/19

Use typical installation mode and enter the *profile directory* of your system.



SAP System > OS User Passwords
Enter the passwords of the operating system users

SAP System Administrator
Account: TWD\190f190f00adm
Password of SAP System Administrator:

SAP System Service User
Account: TWD\190f190fSAPServiceE00
Password of SAP System Service User:

Back Next

Media Browser > Software Package Request
Enter the location of the required software packages

Software Package(s)

Media Name	Package Location	Copy Package To
UC_Kernel NW2004sSR2	G:\ADM110_ECC6_SR2_DVD1Ke...	Browse...

Additional Information
SAPinst will detect the required software packages on the media and check the corresponding package identification files LABEL.ASC.
If you want to copy the media to your local disk, enter the target location in the Copy Package To column.

Cancel OK

Figure 149: Additional Usage Type with SAPinst 3/19

Enter the passwords of the operating system users and the location of Kernel DVD.



Figure 150: Additional Usage Type with SAPinst 4/19

After checking the entries in the summary screen, select *start*.

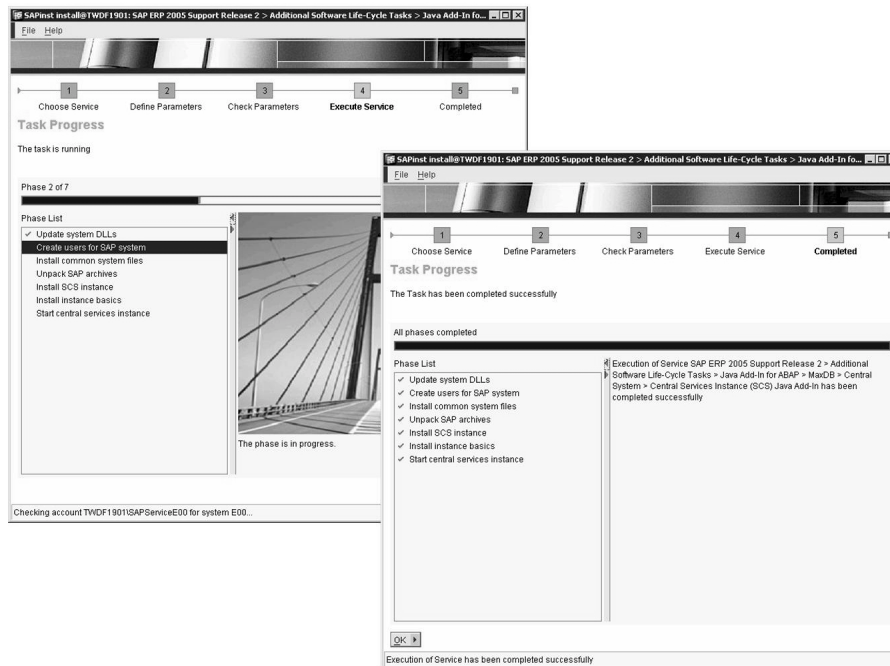


Figure 151: Additional Usage Type with SAPinst 5/19

Installing Database Instance Java Add-In

As a second step you start the installation of *Database Instance Java Add-In*.

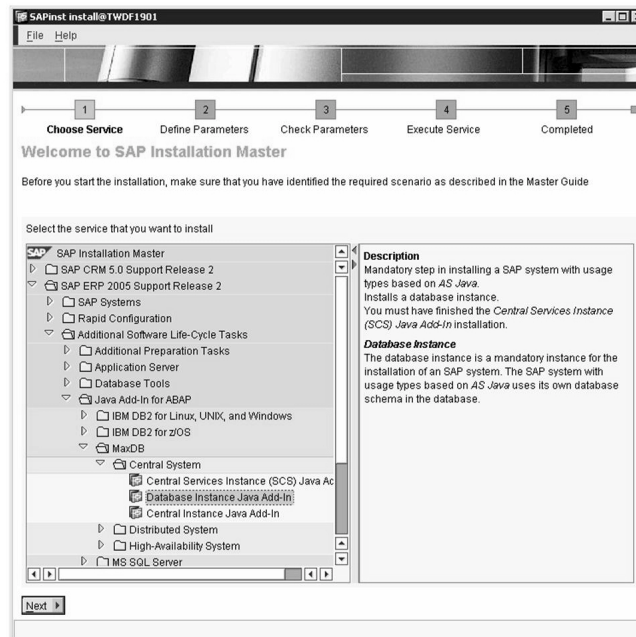


Figure 152: Additional Usage Type with SAPinst 6/19

In SAPinst Welcome screen choose *Database Instance Java Add-In*.



Figure 153: Additional Usage Type with SAPinst 7/19

Use typical installation mode and enter the location of *SAP NW Java DVD*.



Figure 154: Additional Usage Type with SAPinst 8/19

Enter the *profile directory* of your system and choose a master password.

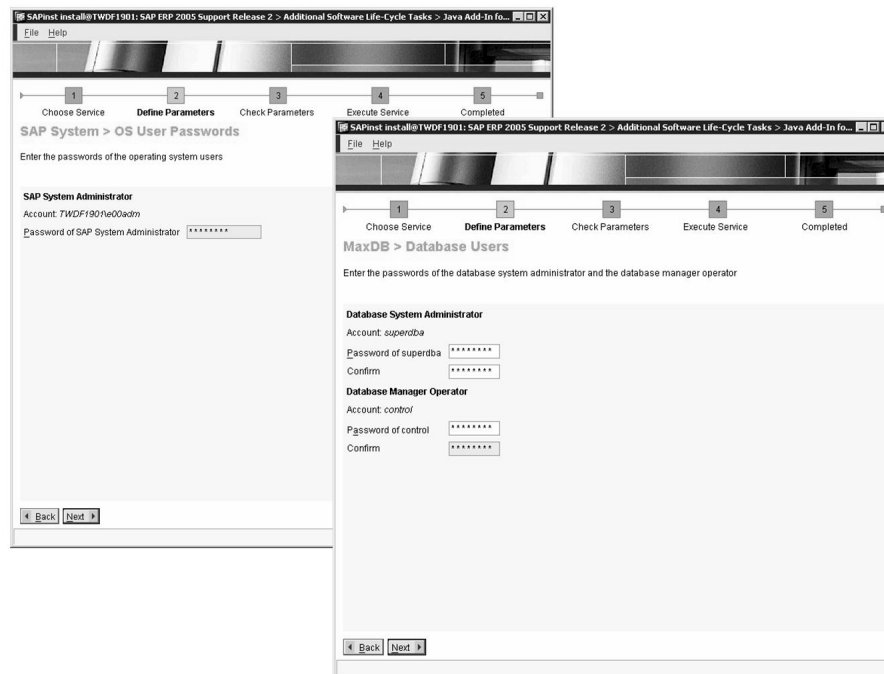


Figure 155: Additional Usage Type with SAPinst 9/19

Enter the password of user<sid>adm and choose the password for database users.

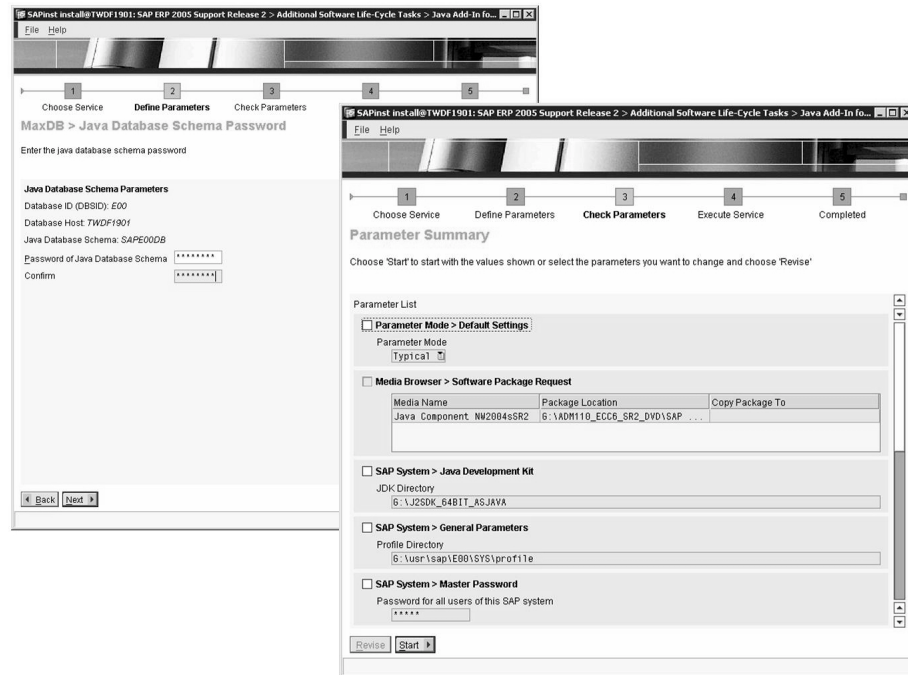


Figure 156: Additional Usage Type with SAPinst 10/19

Choose password for the *Java Database schema*. In the summary screen check your input values and select *start* to initiate the installation.

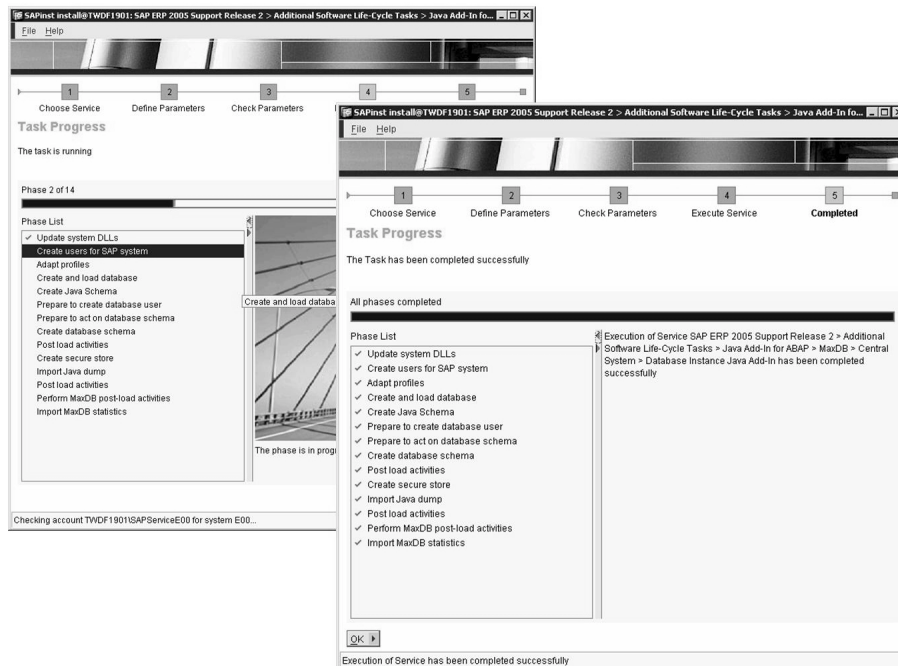


Figure 157: Additional Usage Type with SAPinst 11/19

Installing Central Instance Java Add-In

As a third step you start the installation of *Central Instance Java Add-In*.

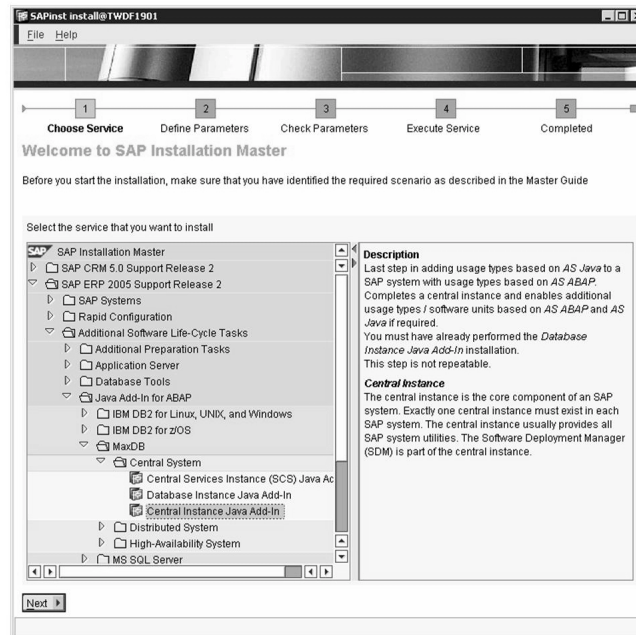


Figure 158: Additional Usage Type with SAPinst 12/19

In SAPinst Welcome screen choose *Central Instance Java Add-In*.

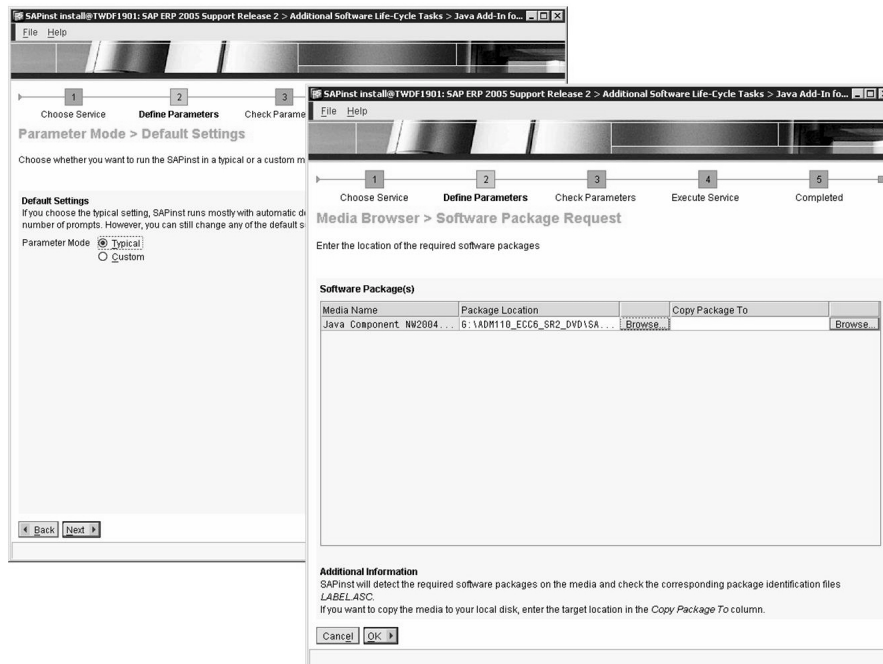


Figure 159: Additional Usage Type with SAPinst 13/19

Use typical installation mode and enter the location of *SAP NW Java DVD*.

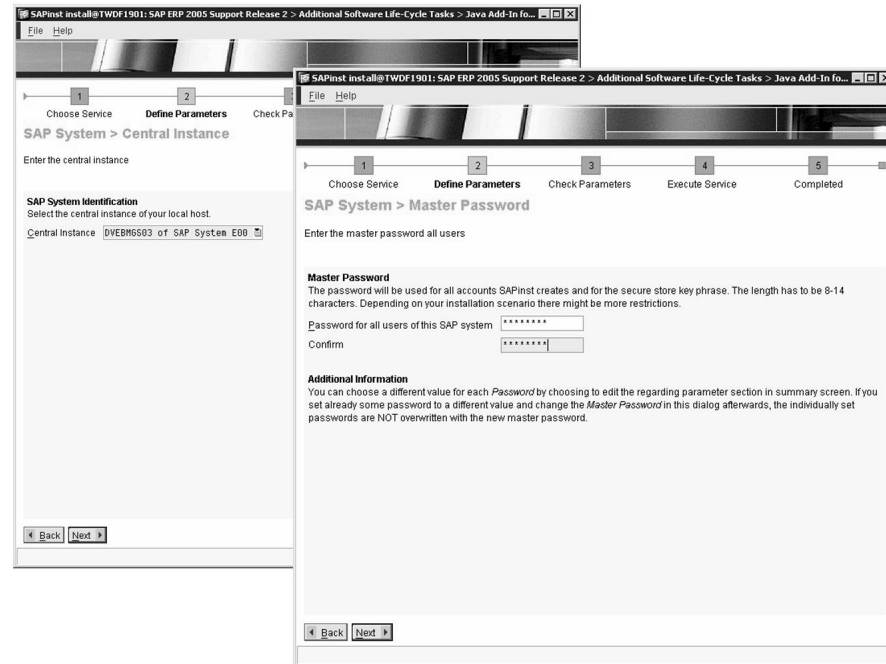


Figure 160: Additional Usage Type with SAPinst 14/19

Select the central instance host and enter the master password.

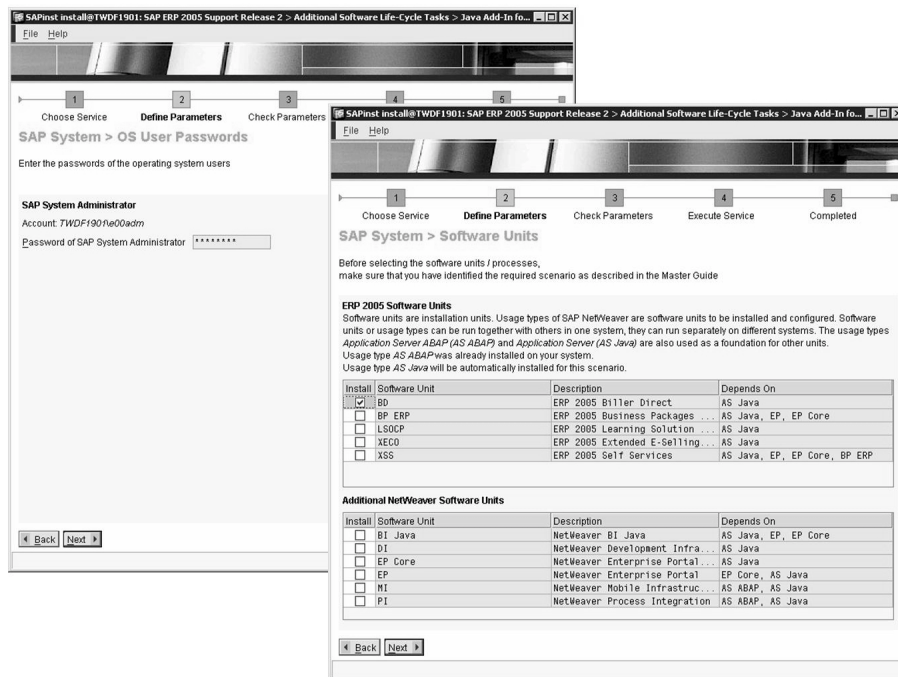


Figure 161: Additional Usage Type with SAPinst 15/19

Enter the password of user<sid>adm and choose your new usage type.

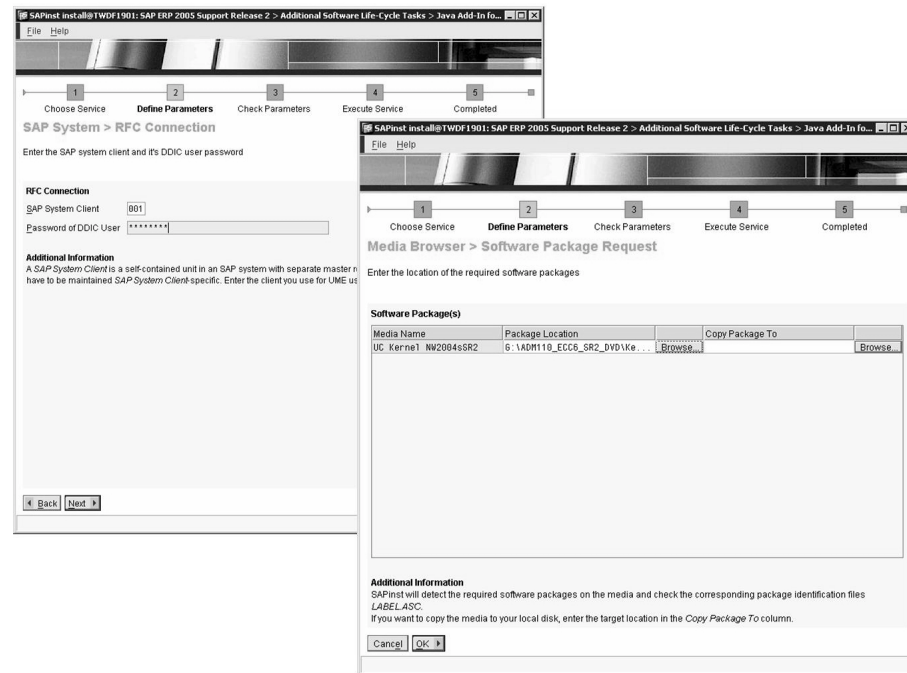


Figure 162: Additional Usage Type with SAPinst 16/19

Enter the client to store the User Management Engine (UME) users and confirm the password for user *DDIC* in this client. Select the location of *Kernel DVD*.



Figure 163: Additional Usage Type with SAPinst 17/19

Enter the location of *Business Suite Java DVD* and choose whether you want to use a system landscape directory (SLD).



The screenshot shows the 'Parameter Summary' window of the SAPinst installation wizard. The window is titled 'SAPinst install@TWDF1901: SAP ERP 2005 Support Release 2 > Additional Software Life-Cycle Tasks > Java Add-In fo...'. It features a progress bar at the top with steps: 1. Choose Service, 2. Define Parameters, 3. Check Parameters, 4. Execute Service, and 5. Completed. The 'Check Parameters' step is currently active.

The main content area is divided into two panes. The left pane, titled 'Parameter List', shows a summary of the parameters being checked. It includes sections for 'Parameter Mode > Default Settings', 'Media Browser > Software Package Request', 'SAP System > Java Development Kit', 'SAP System > Central Instance', and 'SAP System > Master Password'. The right pane, titled 'Parameter Summary', provides a detailed view of the parameters. It includes fields for 'Password for SDM', 'Media Browser > Software Package Check', 'SAP System > NWDL Landscape', 'SAP System > System Landscape Directory', and 'SAP System > ADS Users'. The 'Start' button is highlighted at the bottom right of the window.

Figure 164: Additional Usage Type with SAPinst 18/19

Check the entries in the summary screen and choose *start*.

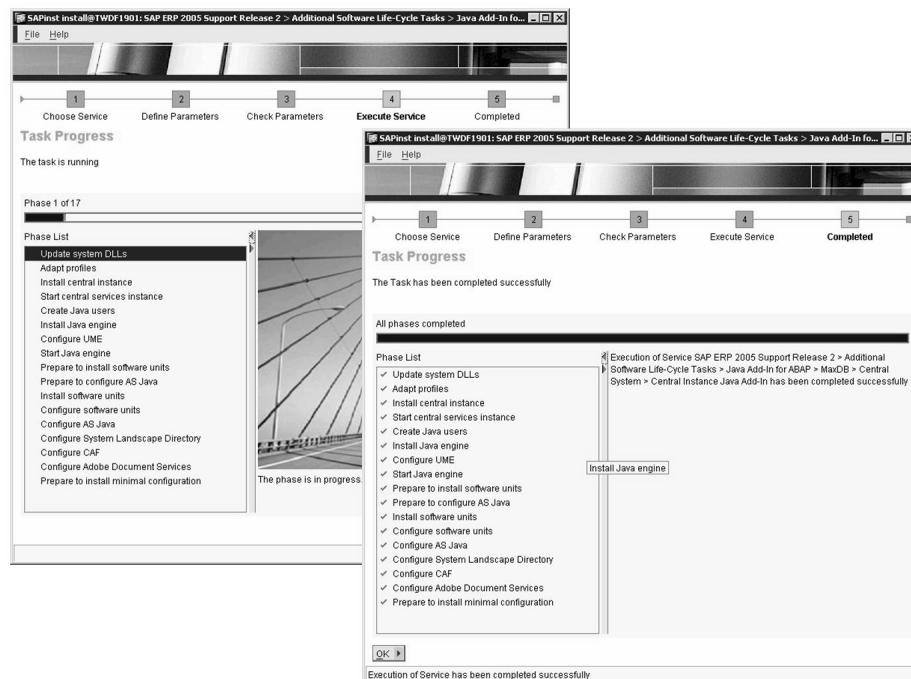


Figure 165: Additional Usage Type with SAPinst 19/19

Installing an additional Usage Type with JSPM

Since SP12 Java Support Package Manager *JSPM* can be used to install an Java based usage type to an existing Java based system. In this case the screenshots show the implementation of usage type BI Java to an existing system with usage type EP.



Figure 167: Additional Usage Type with JSPM 2/4

Start JSPM and enter the SDM password. Select in the next screen *Install Additional Usage Type (advanced use)*

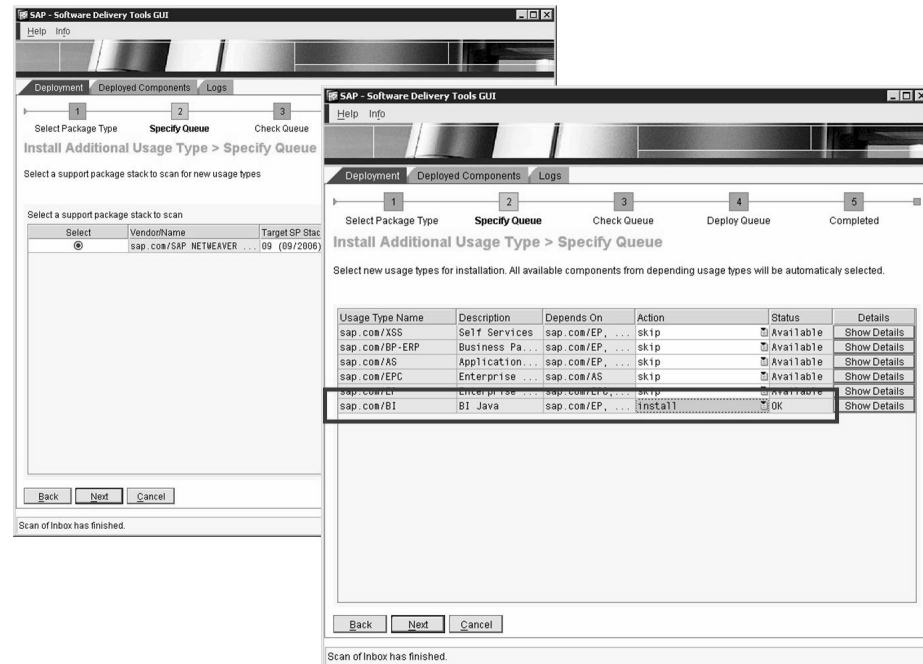


Figure 168: Additional Usage Type with JSPM 3/4

In step *Define Queue* select recommended the Support Package Stack Level. Change the *Action* -Status for all components except for *sap.com/BI* to *skip* and for *sap.com/BI* to *install*.

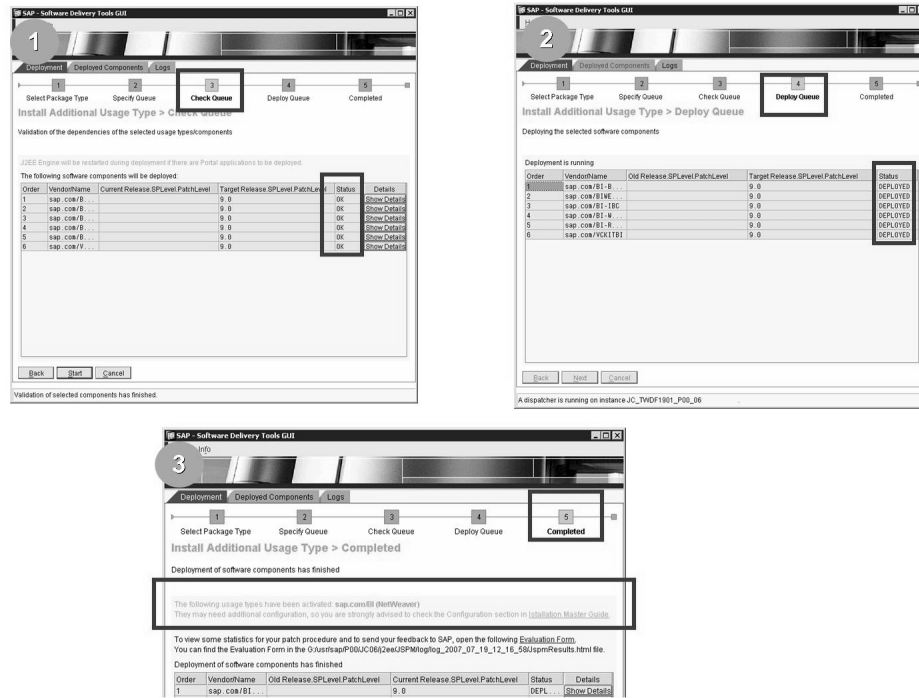


Figure 169: Additional Usage Type with JSPM 4/4

Start the deployment and finally check the result.

Exercise 13: Optional: Installing an additional Usage Type

Exercise Objectives

After completing this exercise, you will be able to:

- install an additional Usage Type

Business Example

ABC Limited is a petrochemical company that wants to install SAP ERP Central Component. You, as the system administrator of ABC Limited, have installed the system landscape including SAP ECC 6.0 for core ERP functions and SAP NetWeaver Portal 7.0 for XSS. Now you need to install a usage type BI Java.

Task: Install an additional Usage Type with JSPM

Install the usage type BI Java on your SAP NetWeaver Portal system using JSPM.



Caution: JSPM needs to be on SP12 or higher to do the following steps.

1. Start JSPM.
2. Install Usage Type BI-Java.

Solution 13: Optional: Installing an additional Usage Type

Task: Install an additional Usage Type with JSPM

Install the usage type BI Java on your SAP NetWeaver Portal system using JSPM.



Caution: JSPM needs to be on SP12 or higher to do the following steps.

1. Start JSPM.
 - a) Logon to operating system of your training server twdf##### with user *install* and password *install*.
 - b) Navigate to *G:\usr\sap\<SID of your portal system>\<central instance>\j2ee\JSPM* and start JSPM with *go.bat*.
2. Install Usage Type BI-Java.
 - a) Proceed as described in the lesson.



Lesson Summary

You should now be able to:

- install an additional Usage Type

Related Information

- <http://service.sap.com/instguides>

Lesson: Installation of SAP ERP Enhancement Package

Lesson Overview

This lesson explains the steps to implement Enhancement Packages for SAP ERP Central Component.



Lesson Objectives

After completing this lesson, you will be able to:

- explain how to install an SAP ERP Enhancement Package

Business Example

ABC Limited, a petrochemical company, uses SAP to manage its data. The company now wants to install the latest version of SAP ERP Central Component (SAP ECC) with Enhancement Packages, to use the functions delivered with the Enhancement Package of SAP ERP Central Component. As the system administrator of ABC, you need to install the Enhancement Package SAP ERP Central Component.

Enhancement Packages

In the past SAP delivers new functions for existing releases with Support Packages, which means not only legal changes and corrections but also several (not all) new functions are available in Support Packages. The really new big functions are normally available with a new release, so that a system upgrade was necessary. A system upgrade is a big project running over a long time. To reduce time and expenses for an system upgrade, SAP introduces *Enhancement Packages*. Starting with SAP ERP 6.0 SAP delivers Enhancement Packages.

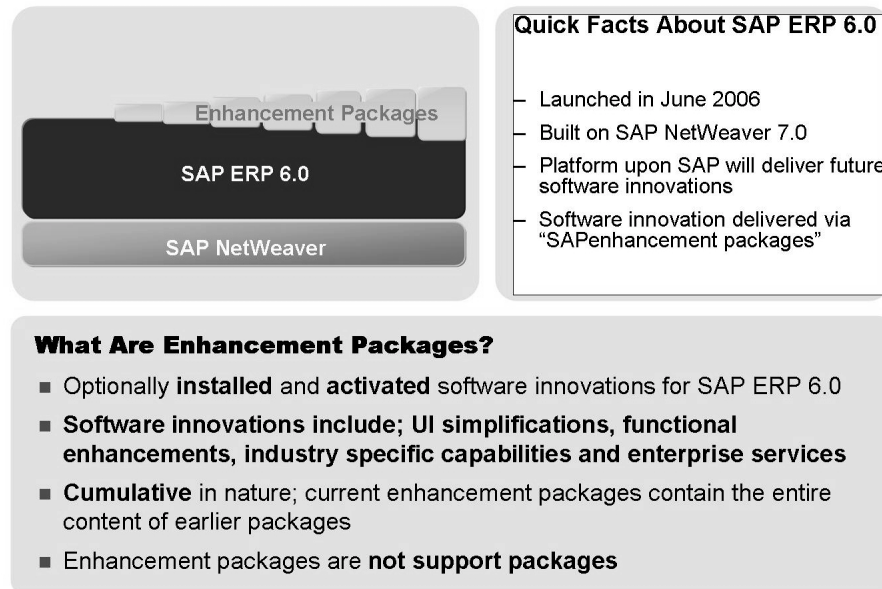


Figure 170: What are Enhancement Packages?

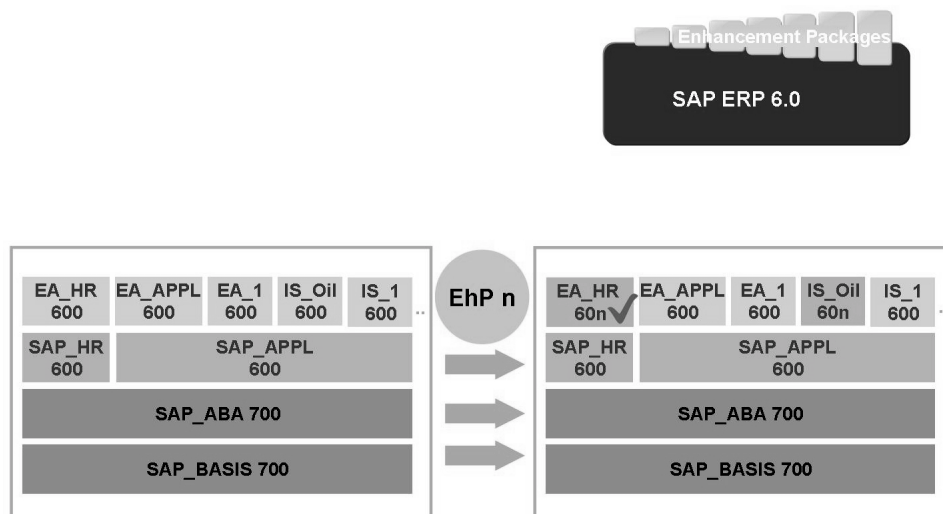
With the Enhancement Package delivery technology, SAP provides you with new developments and enhancements of applications for your existing SAP ERP installations. This means that you can use new developments offered for your business processes when you want to and according to your own requirements.

The new developments and enhancements only become active after you decide to use these new features, have installed the relevant technical components, and have activated the corresponding business functions in your ABAP-based SAP Enterprise Central Components system (SAP ECC system). The existing business processes for which you do not activate a business function remain unchanged.

SAP Enhancement Packages for SAP ERP 6.0 are based on SAP ERP 6.0 and on the SAP NetWeaver 7.0 technology platform.

In SAP ECC 6.0, a new Switch Framework was introduced to activate SAP industry solutions which are delivered with SAP ERP 6.0. With the SAP ECC Enhancement Package, this switch framework has been enhanced to activate deliveries of SAP ERP Enhancement Packages for SAP ERP 6.0 in the customer's system. From the technical point of view this means, the switch framework can change repository objects without being immediately active in the system. Without activating the deliveries for SAP ERP enhancement package, neither the functionality delivered nor the corresponding user interface enhancements can be used.

SAP Enhancement Packages for SAP ERP 6.0 provide organizations, that have implemented SAP ERP 6.0, with additional high-value applications and enable them to install new applications quickly. SAP plans to deliver a number of Enhancement Packages for SAP ERP 6.0. A newer SAP Enhancement Package for SAP ERP 6.0 includes the deliveries of the predecessor version.



Enhancement Package n delivers a new version of EA_HR and IS_OIL, but only functionality of EA_HR is required and activated

Figure 171: Installation and Activation

Enhancement Packages for SAP ERP are shipped as a delta shipment to SAP ERP 6.0. They are full patches for software components of an SAP system. As Enhancement Packages are cumulative, you don't have to care about the implementation sequence. SAP recommends to implement always the newest available Enhancement Package.

Installation of Enhancement Package 2 for ERP 6.0

General Considerations and Preparation for the Installation

Before you install individual components from Enhancement Package 2, note that you cannot uninstall an Enhancement Package.

To install Enhancement Package 2 you require a system on release SAP ERP Central Component 6.0. You need a minimal technical prerequisite for installation of SAP Enhancement Package 2 for SAP ERP 6.0 which is SAP ERP 6.0 Support Package Stack 10.

Make sure that you have installed the latest SPAM/SAINT update in your system (at least Version 0024).

Import the latest R3trans and tp. You must have an R3trans version from at least June 11, 2007.

Process your V3 update entries before you carry out the installation. Before the installation, process your entries in the extraction queues. Before the installation, delete your entries in the reconstruction tables for the logistics extraction applications. Otherwise, there is a risk that you may no longer be able to update entries if changes are introduced into the interface structures of the V3 update modules by Enhancement Package 2 (see Note 328181).

To making packages available use the Maintenance Optimizer to load the installation packages in your system. A description of the procedure is available on SAP Service Marketplace at service.sap.com/erp-inst.

If you do not load the installation packages using Maintenance Optimizer, but instead load manually from the DVD. Log on as user <sid>adm (UNIX), <sid>OFR (AS/400) or <sid>adm (Windows) and switch to the transport directory */usr/sap/trans (UNIX) or <drive>:\usr\sap\trans (Windows)*. Unpack the SAR archive on the DVD with the following statement: *SAPCAR -xyf*. The relevant files should now be in the directory */usr/sap/trans/EPS/in*

Installation of Enhancement Package 2

Enhancement Package 2 is installed using transaction *SAINT*.

Log on to your SAP system in client 000 as a user with SAP_ALL authorization. Do NOT use the SAP* or DDIC users.

Make installation packages visible. Call transaction SAINT and choose *Start* and *Load*. After the list of uploaded packages is displayed, you can return to the initial screen of transaction SAINT by choosing *Back*.

Change number of parallel processes during the installation. You can reduce the duration of the installation by using parallel processing for several R3trans processes. Five parallel R3trans processes are known to be effective. Do NOT use several batch processes for the parallel processing of the method execution (if you do, this may lead to problems, as described in Note 1064621).

Start the installation. Call transaction SAINT and choose *Start*. Select the components that you want to install, and choose *Continue*. If all of the necessary conditions for importing the components have been fulfilled, the system will now display the relevant queue. This queue comprises the installation package and it may also contain Support Packages. To start the installation process, choose *Continue*. For more

information, call transaction SAINT and choose *Info* on the application toolbar. You will be requested to enter a password for each component you select. These passwords are provided in SAP note 1045303.



Activities

- Install the loaded upgrade packages that you find in the inbox of the transaction SAINT
- All software components can be installed in one step
- Result: Only the relevant software components are upgraded
- SPAU comparison for upgraded software components (if system contains any modifications)
- No additional regression test necessary besides the usual support stack regression test

Benefits

- Stability of large system parts
- Reduced effort for SPAU comparison and regression test
- Faster implementation because no upgrade customizing is needed

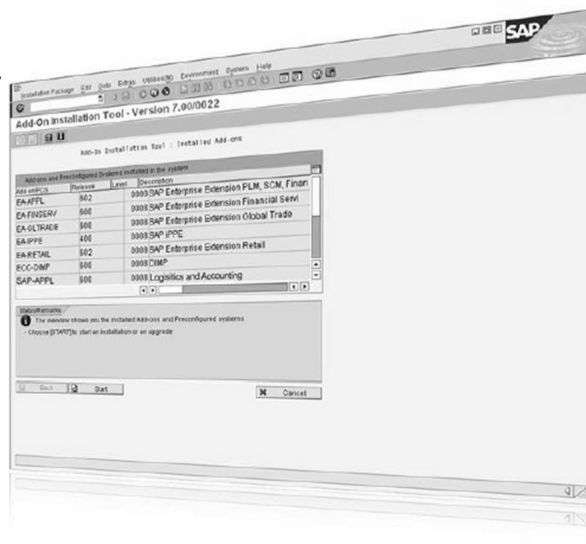


Figure 172: Installation of Enhancement Package 2

SAP recommends to implement the SAP ERP Enhancement Package when doing a regular SP Stack implementation. The installation of the Enhancement Package 2 and the application of the Support Package Stack should be done together in one queue in the Add-On Installation Tool (transaction SAINT). This reduces the downtime and the manual effort for the whole installation procedure.

SAP strongly recommends using SAP Solution Manager to identify & implement the required SAP ERP 6.0 Enhancement Package 2 software components. The Solution Manager Maintenance Optimizer will allow you to select the technical usage(s) which should get implemented. It will calculate automatically the recommended components levels and add them to your download basket. It will provide you a proposal for the installation queue including the Enhancement Package components as well as the required Support Packages.

SAP Enhancement Package 2 for SAP ERP 6.0 is no release but an addition to SAP ERP 6.0, thus a direct upgrade from other releases to SAP Enhancement Package 2 for SAP ERP 6.0 is currently not supported.

After the installation of Enhancement Package 2

To be able to use the new function of the Enhancement Packages, you must activate certain business functions. For information about which business functions are required for which applications, see Note 1052470. In transaction SFW5, you will find all industry-independent business functions of the installed Enhancement Packages under the tab page "Enterprise Business Functions". New business functions for industry solutions are under tab page "Industry Business Functions". If you want to use industry-dependent business functions, you must have activated the relevant industry solution beforehand. For more information, see the Enhancement Package 2 Masterguide. To activate an industry solution, read SAP note 1045303.

To activate a new business function, set the planned status to *On* and choose *Check Changes*. If no error is reported, you can activate the new functions by choosing *Activate Changes*.

Delivery Customizing must be adapted and carefully tested. Afterwards it is imported into client 000 and may need to be copied to other clients. For more information, see Note 337623.



Lesson Summary

You should now be able to:

- explain how to install an SAP ERP Enhancement Package

Related Information

- service.sap.com/erp

Lesson: Appendix: SAP Gateway Installation

Lesson Overview

This appendix describes the installation of a standalone SAP Gateway.



Lesson Objectives

After completing this lesson, you will be able to:

- Install a standalone SAP Gateway instance

Business Example

Your system administrator would like to enable communication from your freshly-installed SAP ERP Central Component system to some legacy SAP R/2 systems. For this communication, a standalone Gateway is useful.

Appendix: Gateway Instance Installation

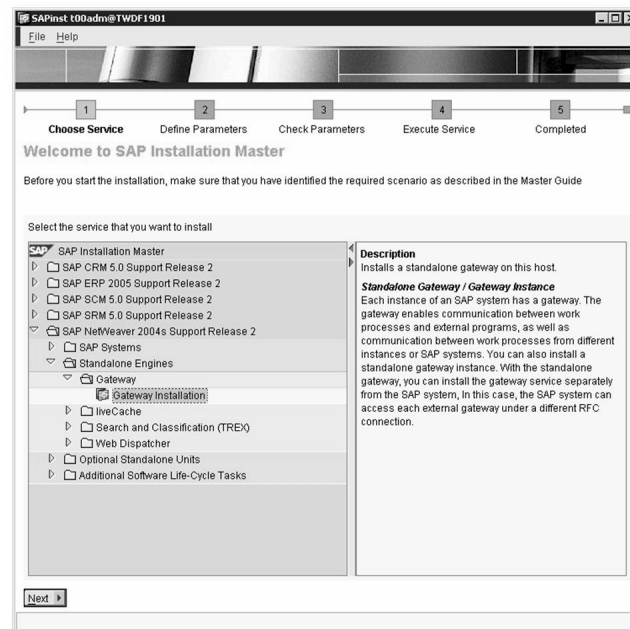


Figure 173: Gateway Instance Installation 1/7

To install a standalone SAP gateway, run SAPInst and navigate to *SAP NetWeaver 2004s Support Release 2* → *Standalone Engines* → *Gateway* → *Gateway Installation*.



SAPinst t00adm@TWDF1901: SAP NetWeaver 2004s Support Release 2 > Standalone Engines > Gateway > Gateway

File Help

1 Choose Service 2 Define Parameters 3 Check Parameters 4 Execute Service 5 Completed

SAP System > General Parameters

Enter the SAP system ID

SAP System Parameters

SAP System ID (SAPSID) 600

Additional Information

The SAP System ID is an identifier for your SAP system. It must be unique throughout your system landscape.

Back Next

Figure 174: Gateway Instance Installation 2/7

Enter a new SAP system ID in the *SAP System ID* field.



Figure 175: Gateway Instance Installation 3/7

Enter and confirm the password for user *<sid>adm* and *SAPService<SID>*.



The screenshot shows the 'Media Browser > Software Package Request' dialog box in the SAPinst application. The window title is 'SAPinst t00adm@TWDF1901: SAP NetWeaver 2004s Support Release 2 > Standalone Engines > Gateway > Gateway ...'. The progress bar at the top indicates the current step is 'Define Parameters' (step 2 of 5). The main area is titled 'Media Browser > Software Package Request' and contains the instruction 'Enter the location of the required software packages'. Below this is a table with the following data:

Media Name	Package Location	Copy Package To
Kernel NW2004sSR2	G:\ADM110_ECC6_SR2_DVD\ke... Browse...	Browse...

Below the table is a large empty text area. At the bottom, there is an 'Additional Information' section with the text: 'SAPinst will detect the required software packages on the media and check the corresponding package identification files LABEL.ASC. If you want to copy the media to your local disk, enter the target location in the Copy Package To column.' At the very bottom are 'Cancel' and 'OK' buttons.

Figure 176: Gateway Instance Installation 4/7

Enter the location of the Kernel DVD.



Figure 177: Gateway Instance Installation 5/7

The parameter summary screen displays the input or default parameter. These parameters are used by SAPinst in the processing phase. It is possible to change the parameters now to your needs. By choosing *start* SAPinst changes from the input phase to the processing phase.

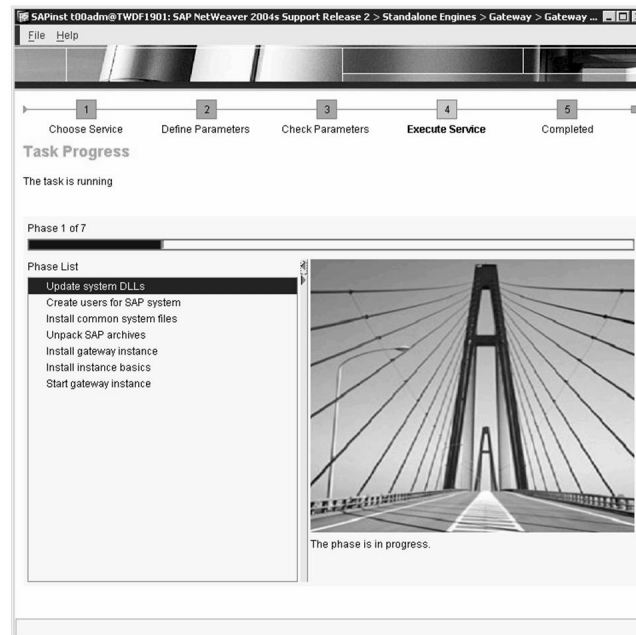


Figure 178: Gateway Instance Installation 6/7

This screen the step *execute service*, which means that SAPinst start the gateway instance installation. SAPinst displays the progress of the installation by highlighting the currently active phase.

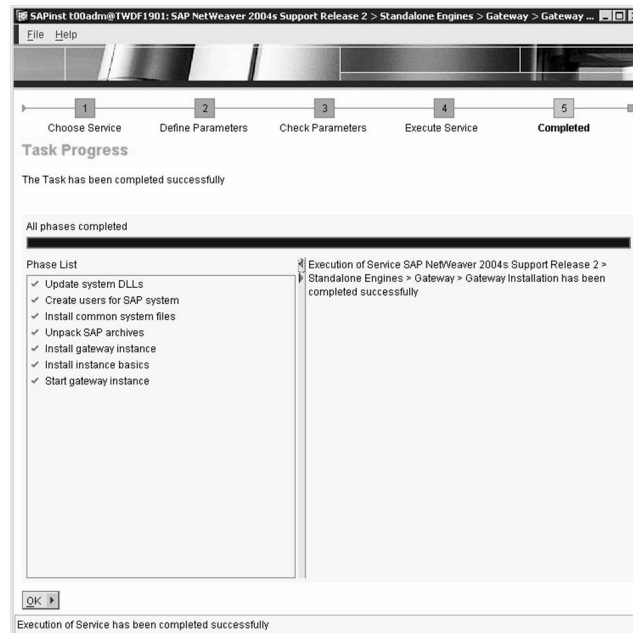


Figure 179: Gateway Instance Installation 7/7

Congratulations!! you have just installed a SAP Gateway.



Lesson Summary

You should now be able to:

- Install a standalone SAP Gateway instance

Related Information

- See the installation guide for Gateway installation at <http://service.sap.com/inst-guides>.



Unit Summary

You should now be able to:

- Install a Dialog Instance
- install an additional Usage Type
- explain how to install an SAP ERP Enhancement Package
- Install a standalone SAP Gateway instance



Test Your Knowledge

1. Which types of dialog instances can be installed to an SAP system?

Choose the correct answer(s).

- ☐ A ABAP dialog instance
- ☐ B central services dialog instance
- ☐ C Java and ABAP dialog instance
- ☐ D Java dialog instance

2. Which tools can be used to install an additional Usage Type?

3. Enhancement Package 2 is installed using transaction SAINT.

Determine whether this statement is true or false.

- ☐ True
- ☐ False



Answers

1. Which types of dialog instances can be installed to an SAP system?

Answer: A, C, D

There is only one central services instance available per system, no dialog instances of this type can be installed.

2. Which tools can be used to install an additional Usage Type?

Answer: SAPinst or JSPM

3. Enhancement Package 2 is installed using transaction SAINT.

Answer: True

Enhancement Package 2 is implemented using transaction SAINT. This procedure can change with newer Enhancement Packages.

Unit 8

“SAP Patch Day”

Unit Overview

This unit deals with maintaining SAP software using Kernel Patches, SAP Notes, Support Packages and Support Package Stacks.



Caution: Information from several different training courses has been put together to form this unit. Therefore you notice some “breaks” in the flow of this unit.

However, please be aware that the most important knowledge to gain from this unit is the whole picture of “**What software components of SAP systems can be patched and how?**”. If you take this knowledge with you, you have reached the objective of this unit.



Note: The following information overrides all detailed information given within the exercises for the lessons of this unit. Please refer back to the following list for the exercises of each lesson.

In this unit you find several lessons, that cover the following topics (related you find the proposed activities to be done as an exercise).



1. Lesson "Importing Corrections":

You will patch AS Java using JSPM. For this lesson you only perform exercise 14, task 3. You will take the necessary files from the location **M:\TADM12_1\Lesson_Importing_Corrections\SP_Stack**

2. Lesson "Applying Patches":

You apply a kernel patch. You find the kernel patch at **M:\TADM12_1\Kernel_Patch_###** (### stands for some number, for example "156". You only execute task 1 of exercise 15. You can either copy the whole directory to you local server and uncompress its content yourself, or you can directly use the files from the subdirectory "uncompressed". If you decide to uncompress the archives yourself, please note that you should uncompress the "dw"-archive last.

3. There are no exercises for the lessons named "Other Tools in Software Lifecycle Management" and "SAP Notes and Support Packages".
4. For the lesson "Support Package Manager (SPAM)" you import the SPAM/SAINT update provided at **M:\TADM12_1\SPAM_SAINT_Update**. You can follow the description of exercise 16, ignoring all references to systems called DEV or QAS.
5. For the lesson "Importing Support Packages" you will use the files to be found at the following location: **M:\TADM12_1\Test_Support_Packages**. Those are "dummy" Support Packages of type SAP_BASIS. You can follow the description of exercise 17, ignoring all references to systems called DEV or QAS. Importing real ABAP Support Packages should only be done, if your instructor explains further details on doing this exercise.
6. For the lesson "Backing Up SAP NW AS Java" there is no exercise.



Caution: As an alternative, your instructor might decide to conduct this unit as follows:

Loosely based on the training material you can try to apply a complete Support Package Stack (Java side AND ABAP side), including all necessary preparation steps and post-activities. This procedure is not described in detail in the course material. Also you will run into several error situations that you can solve using the files provided at **M:\TADM12_1\00_SAP_Patch_Day_SPS15..**

If your instructor offers you this option, please note that you will run into situations where you do not find any solution in this training material. That would be like "real-live".



Unit Objectives

After completing this unit, you will be able to:

- Install Support Packages for SAP NetWeaver Application Server Java-based systems
- Discuss what a Support Package Stack is
- Describe the steps to apply kernel patches
- Describe the steps to apply Java support packages
- Describe the steps to apply ABAP support packages
- List other tools involved in the software lifecycle management environment
- Describe the concept of SAP Notes and Support Packages.
- Explain the concept of the Support Package Stack and the Maintenance Optimizer.
- Explain the use of the Support Package Manager and import a SPAM/SAINT update.
- Import Support Packages with transaction SPAM
- Provide a general explanation of the import process for Support Packages
- Explain which regular backups are required for SAP NW AS Java

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Lesson: Importing Corrections

Lesson Overview

This lesson presents the updating of SAP NetWeaver Application Server Java-based systems by installing a current Support Package.



Lesson Objectives

After completing this lesson, you will be able to:

- Install Support Packages for SAP NetWeaver Application Server Java-based systems

Business Example

SAP NetWeaver Application Server with Usage Type AS Java is used as the runtime environment for applications that conform to the J2EE standard. You can use Support Packages to correct errors and implement new functions for SAP NetWeaver Application Server with Usage Type AS Java.

Support Packages

Support Packages are corrections and new functions that SAP supplies to customers. The component module used by SAP in the context of Java development is used both in delivery (installation) and in the context of maintenance (import of Support Packages).

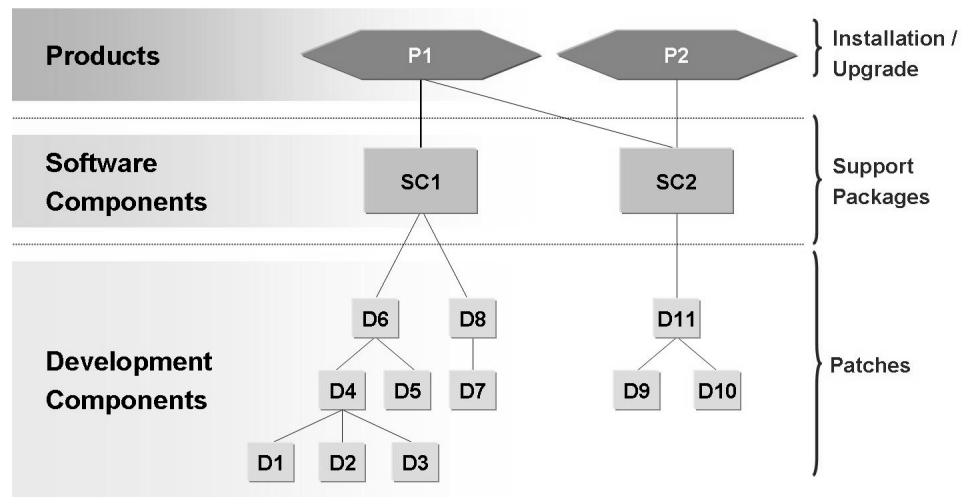


Figure 180: Component Model in Delivery and Maintenance

Software maintenance is organized into three tiers:

- A **product** consists of one or more software components that represent related business processes. Products are installed or undergo an upgrade to a new release. A **release** is a full delivery of software components that provide new functions (and possibly user interfaces) or improvements.
- Software components contain a set of development components. **Support Packages** are delivered in the context of software maintenance. An Support Package (SP) is (unlike ABAP) a full delivery of one (or more) software component(s) and contains a number of patches. If sources are delivered with Support Packages, the SPs must be transported using the NWDI's Change Management Service (CMS). The usual file format of an SP is the SCA format.
- **Patches** are full deliveries of a development component that allow a quick error correction, before the complete SP is available. The usual file format is the SDA format. If patches include sources, they should also be imported using the resources of the CMS.

Introduction: Java Support Package Manager

As of SAP NetWeaver 7.0, the Java Support Package Manager (JSPM) is used to import Support Packages for SAP NetWeaver Application Server Java (AS Java) and all the Java-based software components running on it. JSPM is the only supported tool for the import of Support Packages and Support Package Stacks. JSPM can update all the integral components of Java systems listed below.



- Updating:
 - Kernel, Internet Graphic Server (IGS) and other native AS Java operating system binaries
 - JSPM itself, the system's deployment service (SDM)
 - all installed Java Usage Types in the system
 - modified software components (integration with NWDI)
- Deployment of SAP and third-party software components
- Deployment, update and upgrade of Business Packages in the SAP Business Suite

JSPM can import either individual Support Packages or a complete Support Package Stack. SAP recommends that you always implement the complete Support Package Stack in a Java system. This is the only way to ensure the consistency of the system and the application.

Java Support Package files (SCAs) contain all the software objects and the associated software components (Full Patch). As a result, it is sufficient to update the Java system with the required Support Package Stack. It is not necessary to import all the Support Package Stacks from the start Support Package Stack level through to the Support Package Stack level one after the other.

JSPM provides a simple, intuitive graphical user interface (GUI). JSPM only displays those components for which an update is possible. You can also see the current Support Package level in JSPM. JSPM simplifies the Support Package management process for Java applications by recognizing and taking account of dependencies and reducing manual activities.

JSPM works together with the SAP NetWeaver Development Infrastructure (NWDI), thus making it possible to identify modified components. JSPM does not deploy the standard Support Packages but instead the NWDI's adapted Software Component Archives (SCAs).

To deploy Support Packages and software components, JSPM connects to the SDM server (central instance).

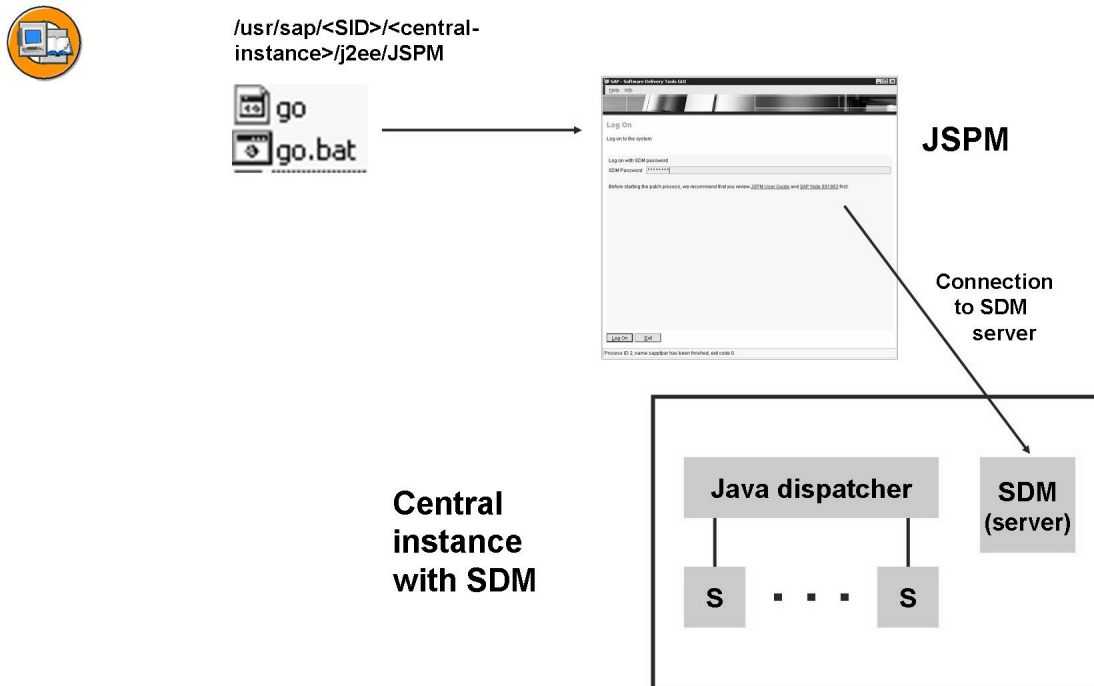


Figure 181: JSPM-to-SDM Connection

Before deployment, the SDM server performs additional checks of the Support Packages and software components.

AS Java and the SDM server must be started before you can start JSPM. It is also important that no applications (e.g. SDM GUI) are connected to the SDM server since only one connection can be opened to the SDM server.



Hint: Only the user `<sid>adm` may start the JSPM.

You start JSPM using a central instance file system script from the directory `/usr/sap/<SID>/<central instance>/j2ee/JSPM`. The script is named `go.bat` (Windows) or `go` (Unix). You must now enter the SDM password.

If you enter the password incorrectly three times, the SDM server is stopped. You must then restart it and log onto JSPM again.

JSPM writes all its log files to the directory `/usr/sap/<SID>/<central instance>/j2ee/JSPM/log`.

Before you use the Java Support Package Manager, please read SAP Note 891983. If you use SAP systems on iSeries then you can find additional information in SAP Notes 885063 and 1066038.

JSPM: Preparatory Steps

You should note the following steps before using JSPM:

1. Before the update: Check the entire functional capability of the system
2. Download the Support Package Stack (for all employed Usage Types) **and** the corresponding Support Package Stack definition file (SPSTab.xml).



Note: In the JSPM Gui, you can find the activated Usage Types in the *Deployed Components* tab.



Hint: Only the definition file (SPSTab.xml) corresponding to the Support Package Stack should be present in the file system as otherwise problems may occur.

3. Storage location of the files (Support Packages and Support Package definition file): JSPM Inbox (Default: */usr/sap/trans/EPS/in*)



Note: The storage location of the JSPM Inbox is defined via the parameter *DIR_EPS_ROOT*.

4. Check the free space in the file system for the SDM file transfer directory */usr/sap/<SID>/<central instance>/SDM/program/temp*



Note: Temporarily available disk space: 1.5 times the size of the Support Package files



Hint: You can use the following commands to modify the SMD's file transfer directory:

- a) Windows:

```
cd <sdm_home>
StopServer.bat
sdm.bat jstartup "mode=standalone"
sdm.bat filetransferdir "dir=new_dir"
sdm.bat jstartup "mode=integrated"
StartServer.bat
```

- b) UNIX :

```
cd <sdm_home>
StopServer.sh
```

```
sdm.sh jstartup mode=standalone
sdm.sh filetransferdir dir=new_dir
sdm.sh jstartup mode=integrated
StartServer.sh
```

5. Check and, if necessary, update the JDK version and Java VM settings of the Java runtime environment (SAP Note 723909)
6. Check: The password of the default Java administration user in the secure store must be up-to-date!



Note: For information on modifying the default Java administration user, see SAP Note: 870445

If JSPM is to recognize the Support Package Stack correctly, both the Support Package files and the corresponding Support Package Stack definition file (SPSTab.xml) must be downloaded and available in the JSPM Inbox.

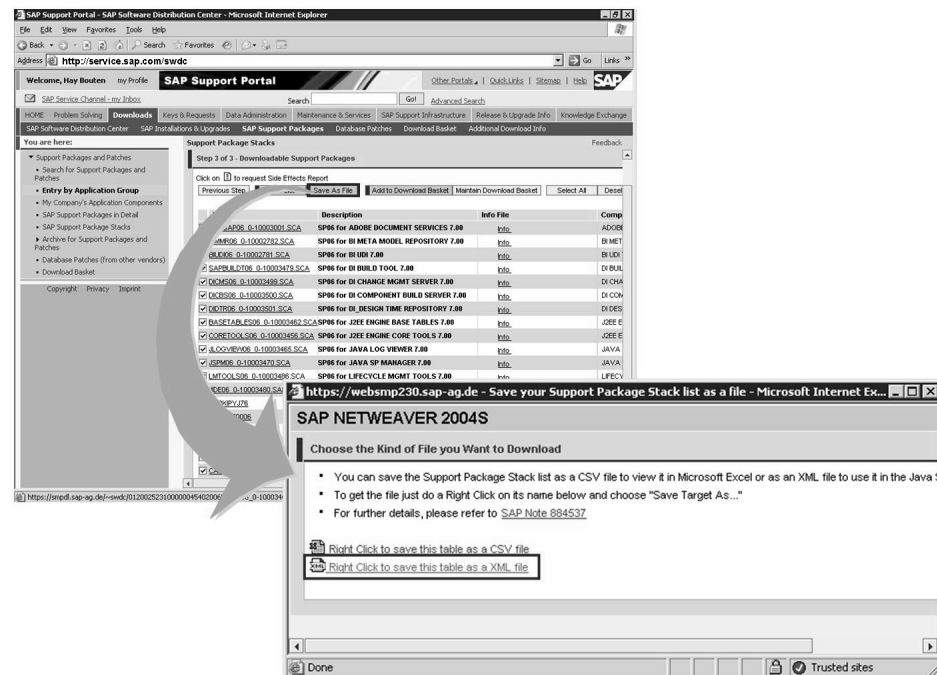



Figure 182: Downloading the Files

JSPM: Importing Corrections

You perform the following steps to import corrections using JSPM.

1. Log on as user `<sid>adm` to the central instance host.
 **Note:** Close the SAP Management Console and the SDM Remote Gui Client.
2. Start the JSPM and log on with the SDM password.



Hint: Start JSPM from `/usr/sap/<SID>/<central instance>/j2ee/JSPM` using the script `go` or `go.bat`.

3. Update the JSPM
 - a) Select the *Deployment* tab.
 - b) Select the option *Single Support Package*.
 - c) Update the component `sap.com/JSPM`.



Hint: The JSPM update can be imported at runtime.

4. Call JSPM again and enter the SDM password.
5. In the *Deployment* tab, select the option *Support Package Stack* followed by *Next*.



Hint: If the system to be updated forms part of an NWDI landscape, specify the system's corresponding role!

In this step, JSPM performs a number of status checks and displays the result for each individual software component in the following screen. The following status can be reported:.

- *OK*: SP can be imported.
- *WARNING*: The software contains customer modifications in a system monitored by NWDI. Deployment can be performed.
- *REVISE*: Indicates inconsistencies with the corresponding software component. A deployment **cannot be performed** until all the problems have been eliminated.

6. Select *Next* if the SP Stack has the appropriate status. This starts the updating of the software component and the status of the JSPM changes to *SCHEDULED*.



Hint: If dialog instances are running, JSPM requests you to stop them.



Hint: If a system restart is required, you are informed of this and you initiate the restart by choosing *Next*.

You start JSPM from the file system and log on with the SDM password.

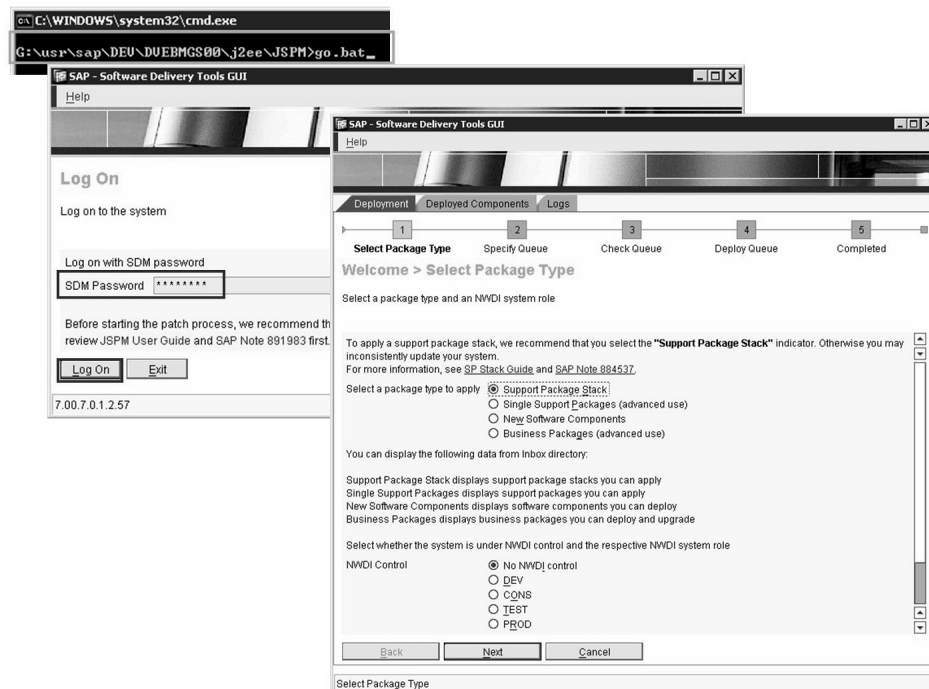


Figure 183: Starting JSPM

The step *Specify Queue* displays the (highest) Support Package Stack level available in the JSPM Inbox. Then, in the *Check Queue* step, JSPM checks the deployment queue and every software component in the stack is assigned a status.



Figure 184: Support Package Stack: Specify Queue, Check Queue

In the *Deploy Queue* step, JSPM starts the deployment of the software components in the selected stack. At this time, the status is set to *SCHEDULED*. The *Completed* step displays the status of the software components after deployment.

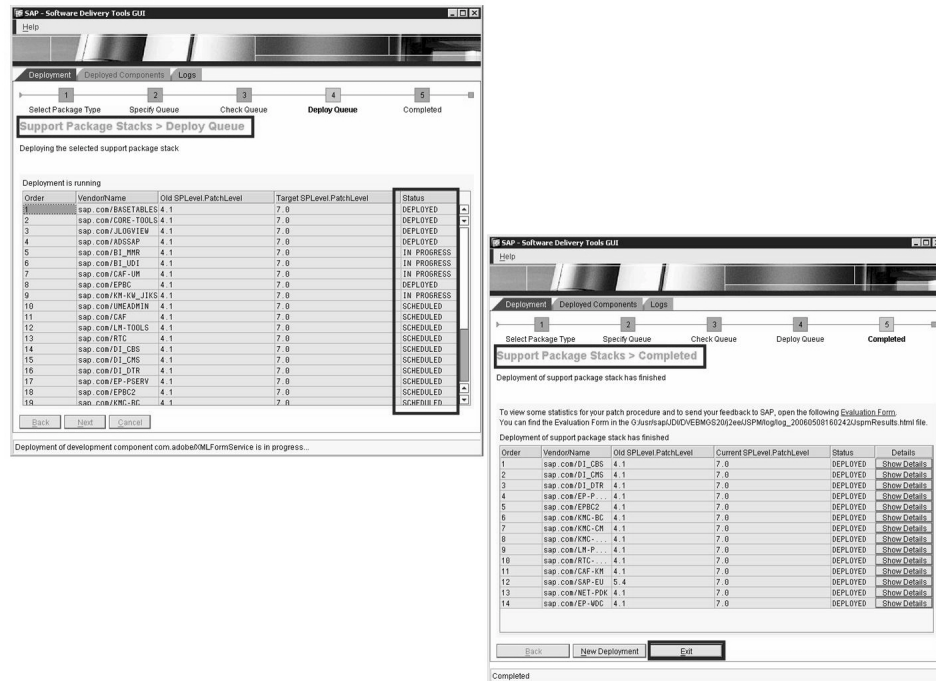


Figure 185: Support Package Stack: Deploy Queue, Completed

After import, the Support Packages can have the following status:

- *DEPLOYED*
- *DEPLOYED WITH WARNING*: The Support Packages have been deployed but might possibly not function correctly with other deployed components.
- *ERROR*: An error occurred during deployment and must be eliminated before continuing with the import of the Support Package.
- *NOT DEPLOYED*: For certain reasons, JSPM has not attempted to deploy the software components. Eliminate the problems and restart the import.

If the Support Package Stack contains a Kernel Update, JSPM starts with the Kernel Update. JSPM updates the kernel binaries of all the instances (dialog instances and CS instance).

In the case of a Kernel Update, the following steps are performed:

1. JSPM automatically stops the central instance and requests you to stop the dialog instances and CS instance
2. After all the instances have been stopped, choose **Next** to start the Kernel Update.
3. Once the kernel has been updated, a dialog box asks you to restart the CS instance.
4. Choose **Next** so that JSPM can import the remaining Support Packages.

In general, corrections can be imported individually or in the stack. SAP urgently recommends you to use Support Package Stacks in order to ensure the consistency of the system and the applications.

After starting, JSPM offers you the following options:

- Support Package stack
- Single Support Package (advanced use)
- New Software Components
- Business Packages (advanced use)

If you only want to update individual software components and not all the components of the SP Stack, choose the option *Single Support Package (advanced use)*.



Caution: Before starting the import of Support Packages at a given level, you must make sure that the JSPM Update has at least the same level.

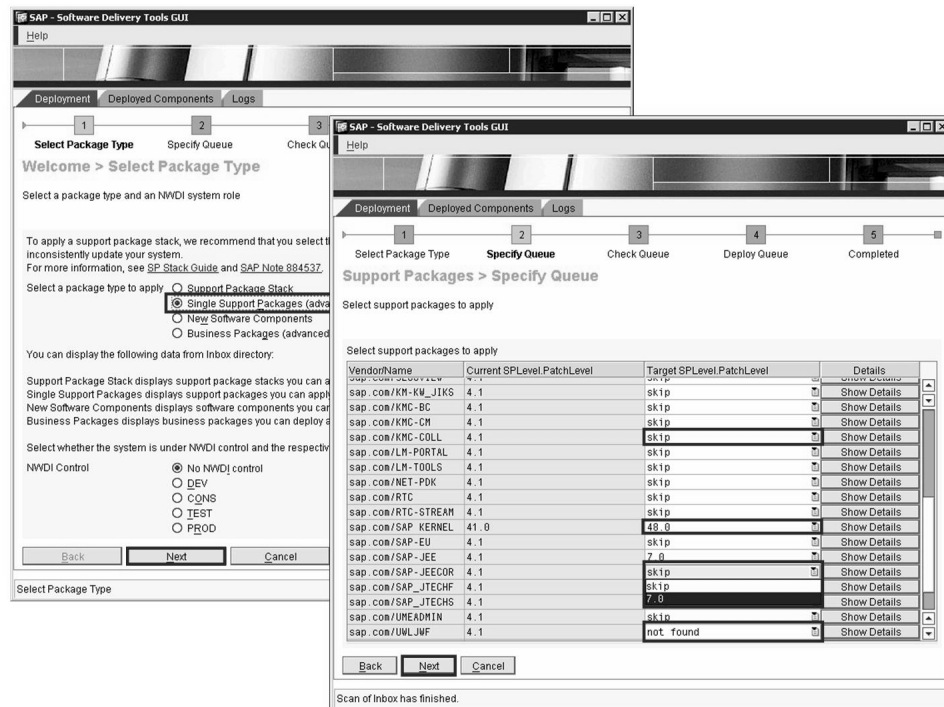


Figure 186: Single Support Package: Select Package Type, Specify Queue

In the next step, you specify the queue by choosing the required SP level or *skip* (do not import) for each software component. In the case of modified software components and systems monitored by NWDI, there is also the setting *<SP level>, Modified by NWDI*.

JSPM now checks the validity of the deployment queue and outputs the status *OK*, *WARNING* or *REVISE* accordingly.

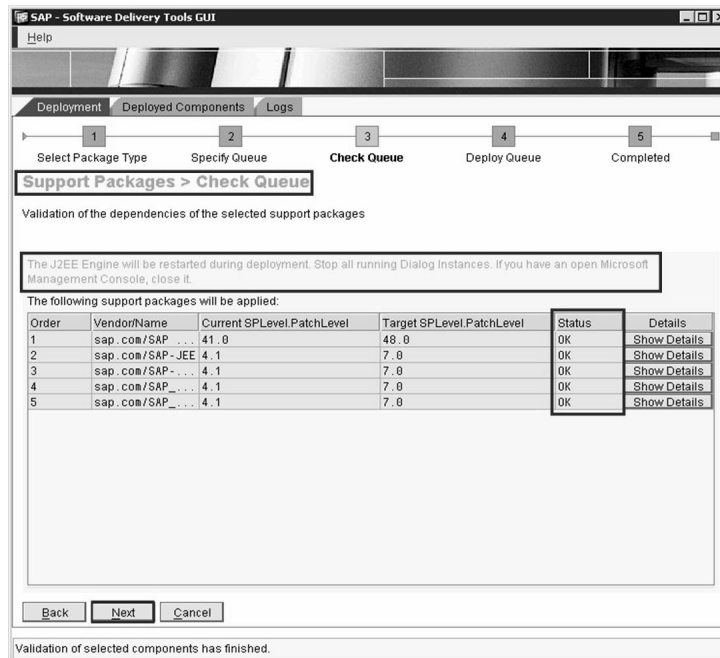


Figure 187: Single Support Package: Check Queue

In the fourth step, deployment is started and the status of all the components changes to *SCHEDULED* or *IN PROGRESS*. In the last step, the final status is displayed (*DEPLOYED*, *DEPLOYED WITH WARNINGS*, *NOT DEPLOYED*, *ERROR*)



The figure consists of two screenshots of the SAP Software Delivery Tools GUI, illustrating the deployment process for support packages.

Left Screenshot: 'Support Packages > Deploy Queue'

The progress bar shows step 2 'Specify Queue' is active. The table below shows the deployment status:

Order	VendorName	Old SPLevel PatchLevel	Target SPLevel PatchLevel	Status
1	sap.com/SAP_KERNEL	41.0	48.0	DEPLOYED
2	sap.com/SAP_JEE	4.1	7.0	IN PROGRESS
3	sap.com/SAP_JEECOR	4.1	7.0	SCHEDULED
4	sap.com/SAP_JTECHF	4.1	7.0	SCHEDULED
5	sap.com/SAP_JTECHS	4.1	7.0	SCHEDULED

Right Screenshot: 'Support Packages > Completed'

The progress bar shows step 5 'Completed' is active. The deployment of support packages has finished. A message states: "To view some statistics for your patch procedure and to send your feedback to SAP, open the following [Evaluation Form](#). You can find the Evaluation Form in the G:\usr\sap\CENT\VEBM\G10\ZeeUSPM\log_20060430193251\uspmResults.html file."

The table below shows the final status of the deployment:

Order	VendorName	Old SPLevel PatchLevel	Current SPLevel PatchLevel	Status	Details
1	sap.com/SAP_KERNEL	41.0	48.0	DEPLOYED	Show Details
2	sap.com/SAP_JEE	4.1	7.0	DEPLOYED	Show Details
3	sap.com/SAP_JEECOR	4.1	7.0	DEPLOYED	Show Details
4	sap.com/SAP_JTECHF	4.1	7.0	DEPLOYED	Show Details
5	sap.com/SAP_JTECHS	4.1	7.0	DEPLOYED	Show Details

Figure 188: Single Support Package: Deploy Queue, Completed

Exercise 14: Importing Corrections

Exercise Objectives

After completing this exercise, you will be able to:

- Import corrections for AS Java

Business Example

SAP NetWeaver Application Server Java is used as the runtime environment for applications that conform to the J2EE standard. You can use Support Packages to correct errors and implement new functions for SAP NetWeaver AS Java.

Task 1: Importing a Support Package

Use JSPM to import a Support Package.

1. Start JSPM.
2. Now import a single Support Package. Select the component *sap.com/UMEADMIN*.

Result

You have successfully imported a Support Package for SAP NetWeaver AS Java.

Task 2: Optional: Importing a JSPM Update



Hint: This exercise can only be performed if an update that is more recent than the JSPM update present on the system is available!

1. Use JSPM to check the current JSPM level. To do this, start JSPM.
2. Update the component *sap.com/JSPM*.

Result

You have successfully imported a JSPM Update for SAP NetWeaver AS Java.

Continued on next page

Task 3: Optional: Importing a Support Package Stack

Use JSPM to import a Support Package Stack.

1. Check the current Support Package Stack level . To do this, compare the specifications in the system information with the SP Stack level that is available for import and displayed in JSPM.
2. Start JSPM and import a more recent Support Package stack.

Solution 14: Importing Corrections

Task 1: Importing a Support Package

Use JSPM to import a Support Package.

1. Start JSPM.
 - a) Log on as user `<sid>adm` to the central instance host.
 - b) Start JSPM (`/usr/sap/<SID>/<central instance>/j2ee/JSPM/go.bat`) and log on with the SDM password given to you by the instructor.
2. Now import a single Support Package. Select the component `sap.com/UMEADMIN`.
 - a) In the step *Select Package Type*, choose the option *Single Support Packages* followed by *Next*.
 - b) In the *Specify Queue* step, set all the components apart from `sap.com/UMEADMIN` to **skip**. The current SP level should continue to be entered for `sap.com/UMEADMIN`. Now choose *Next*.
 - c) In the *Check Queue* step, the status *ok* should be displayed for `sap.com/UMEADMIN`. Confirm with *Next*.
 - d) In the *Deploy Queue* step, the component is assigned the status *SCHEDULED* and is then displayed with the achieved status (Deployed) after deployment.
 - e) In the *Completed* step, select *Exit*.

Result

You have successfully imported a Support Package for SAP NetWeaver AS Java.

Continued on next page

Task 2: Optional: Importing a JSPM Update



Hint: This exercise can only be performed if an update that is more recent than the JSPM update present on the system is available!

1. Use JSPM to check the current JSPM level. To do this, start JSPM.
 - a) Log on as user `<sid>adm` to your central instance's host.
 - b) Start JSPM (`/usr/sap/<SID>/<central instance>/j2ee/JSPM/go.bat`) and log on with the SDM password given to you by the instructor.
 - c) In the step *Select Package Type*, choose the option *Single Support Packages* followed by *Next*.
 - d) You can read the JSPM patch level in the *Specify Queue* step. For the component `sap.com/JSPM`, look in the column *Current SP Level.Patch Level*.
2. Update the component `sap.com/JSPM`.
 - a) If you have not yet already done so, start JSPM (see 1.)
 - b) In the step *Select Package Type*, choose the option *Single Support Packages* followed by *Next*.
 - c) In the *Specify Queue* step, set all the components apart from `sap.com/JSPM` to **skip**. You should select an SP level higher than the current one for `sap.com/JSPM`. Now confirm with *Next*.
 - d) In the *Check Queue* step, the status *ok* should be displayed for `sap.com/JSPM`. Confirm with *Next*.
 - e) In the *Deploy Queue* step, the component is assigned the status *SCHEDULED* and is then displayed with the achieved status (Deployed) after deployment.
 - f) In the *Completed* step, select *Exit*.

Result

You have successfully imported a JSPM Update for SAP NetWeaver AS Java.

Continued on next page

Task 3: Optional: Importing a Support Package Stack

Use JSPM to import a Support Package Stack.

1. Check the current Support Package Stack level . To do this, compare the specifications in the system information with the SP Stack level that is available for import and displayed in JSPM.

- a) Call the system information via its URL.

The URL is [http://twdfxxxx.wdf.sap.corp:55\\$00/sap/monitoring/System-Info](http://twdfxxxx.wdf.sap.corp:55$00/sap/monitoring/System-Info). Replace *twdfxxxx* with the name of the training host and replace \$\$ with the instance number of your system. Then log on as user ADM200-## (## is the assigned group number). The instructor will tell you your password.

Navigate to the area *Software Component Version*. Here you will find the Support Package level for the components *sap.com/SAP-JEECOR* and *sap.com/SAP-JEE*.

- b) Log on as user *<sid>adm* to your central instance's host.

Start JSPM (*/usr/sap/<SID>/<central instance>/j2ee/JSPM/ go.bat*) and log on with the SDM password given to you by the instructor.

In the step *Select Package Type*, choose the option *Support Package Stack* and confirm with *Next*.

The stack that is available according to *G:\usr\sap\trans\EPS\in\SPStab.xml* and which it may be possible to import is now displayed. Choose *Show Details* to see which Support Package levels contain the individual components.

Continued on next page

2. Start JSPM and import a more recent Support Package stack.
 - a) If you have not already done so, log on as user *<sid>adm* to your central instance's host.
 - b) If you have not already done so, start JSPM (*/usr/sap/<SID>/<central instance>/j2ee/JSPM/go.bat*) and log on with the SDM password given to you by the instructor.
 - c) If you have not already done so, in the step *Select Package Type*, choose the option *Support Package Stack* and confirm with *Next*.
 - d) In the *Specify Queue* step, choose the highest available Support Package Stack level.



Hint: The selected SP Stack level must be higher than that of the stack that is already imported!

Now confirm with *Next*.

- e) In the *Check Queue* step, the status *ok* should be displayed for all the important components. Confirm with *Next*.
- f) In the *Deploy Queue* step, the components are assigned the status *SCHEDULED* and are then displayed with the achieved status (Deployed) after deployment.
- g) In the *Completed* step, select *Exit*.

Result

You have successfully imported a Support Package Stack for SAP NetWeaver AS Java.



Lesson Summary

You should now be able to:

- Install Support Packages for SAP NetWeaver Application Server Java-based systems

Related Information

- SAP NetWeaver Support Package Stack Guide
- SAP Note 891983, JSPM: Composite-SAP Note SAP NetWeaver 2004s AS Java
- SAP Service Marketplace: Quick Link [/jspm](#)

Lesson: Applying Patches

Lesson Overview

This lesson explains how to implement important patches, such as kernel patches, Support Packages for AS ABAP and AS Java..



Lesson Objectives

After completing this lesson, you will be able to:

- Discuss what a Support Package Stack is
- Describe the steps to apply kernel patches
- Describe the steps to apply Java support packages
- Describe the steps to apply ABAP support packages

Business Example

ABC Limited, a petrochemical company, installed the latest version of SAP system, SAP ERP Central Component. After installing SAP ERP Central Component, you, as the system administrator in the company, need to patch SAP ERP Central Component to the latest available patch levels using SAP Support Packages Stacks.

Support Package Stacks

SAP recommends that you keep your systems up to date by regularly applying the SAP Support Packages and SAP Kernel Patches. This patching is becoming more and more a challenge by the complexity of system landscapes.

To meet customers needs, SAP has extended the SAP Support Package strategy for certain product versions to Support Package Stacks (SP Stacks). Most customers apply bundles of support packages and patches in regular intervals (usually quarterly). The new strategy supports the actual way in which the majority of customers apply Support Packages.

The increasing diversity of components within a product version calls for greater transparency when it comes to applying Support Packages and patches. It also requires clear guidelines on the recommended or permitted combinations of these. For this purpose, a new SP Stack will be compiled for each product version included in the new strategy (usually quarterly). This SP Stack will contain the optimal combination of Support Package and patch statuses for the individual components at the given time.

A Support Package Stack also contains a installation guide for the Support Package Stack. For example, the Support Package Stack Guide - SAP NetWeaver 7.0 SP Stack contains detailed information on:

- The content of Support Package Stack
You get information on:
 - Existing patchable components
 - The Support Package level required for each of these components
 - How the corresponding Support Packages are named
- How to apply Support Packages to the different SAP NetWeaver 7.0 Scenarios
- How to apply patches to the generic components, for example, the Kernel or SAP GUI
- The use of the different Support Package Stack Tools

It is **very** important that you read these Support Package Stack guides before you start applying the support packages and patches.

You can download Support Package Stacks from the SAP Service Marketplace (<http://service.sap.com/sp-stacks>) using the Maintenance Optimizer in your Solution Manager system. The patch download page displays a wizard that will help you to select the correct support packages and other required patches for a Support Package Stack. The only thing you need to do is enter the current patch level of your SAP system and the wizard will automatically select all the relevant support packages and patches for your situation.



http://service.sap.com/sp-stacks

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Support Package Stacks

SAP ERP 2005

Step 1 of 3 - Choose your Source and Target Stack Help

Please choose the Source Stack and then the Target Stack
Remark: The Source Stack is not mandatory so if you do not know it, leave the field empty

Target Stack: 10 (07/2007) Show Stack Information

Source Stack: Show Stack Information

☒ Restrict according to Usage

Usage Selection

<input checked="" type="checkbox"/> ERP Central Component (ECC)	<input checked="" type="checkbox"/> XI Content	Select All
<input checked="" type="checkbox"/> Strategic Enterprise Mgmt	<input checked="" type="checkbox"/> Self Services	Deselect All
<input checked="" type="checkbox"/> Supplier Relationship Mgmt	<input checked="" type="checkbox"/> Extended E-Commerce Components	
<input checked="" type="checkbox"/> Financial Supply Chain Mgmt	<input checked="" type="checkbox"/> cProject Suite	
<input checked="" type="checkbox"/> E-Recruiting	<input checked="" type="checkbox"/> Learning Solution	
<input checked="" type="checkbox"/> Process Integration (XI)	<input checked="" type="checkbox"/> Workforce Mgmt Core	
<input checked="" type="checkbox"/> Business Intelligence	<input checked="" type="checkbox"/> Portal Content	
<input checked="" type="checkbox"/> Enterprise Portal	<input checked="" type="checkbox"/> Easy Document Management	
<input checked="" type="checkbox"/> EP Core	<input checked="" type="checkbox"/> Mobile Infrastructure	

Next Step

Additional Information

SAP ERP 2005 - Support Package Stack Download

This is the download summary for SAP ERP 2005 Support Package Stacks.
 General information about SAP Support Package Stacks can be found under Quick Link [/spstacks](#).

Support Package Stacks for SAP ERP 2005 released after April 2nd, 2007 will ONLY be available via SAP Solution Manager's Maintenance Optimizer. Find more details here
<http://service.sap.com/solman-mopz>

Figure 189: Support Package Stack

The screenshot shows the Support Package Stack selection screen. For more information on Support Package Stacks, you can visit SAP Service Marketplace (<http://service.sap.com/sp-stacks>).

Implementing Packages



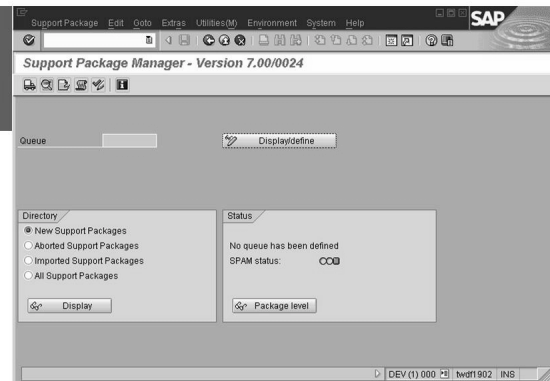
- Import ABAP support packages
- Implement JAVA support packages
- Implement latest versions of SAP executables (kernel)
- Implement patches for the SAP GUI and other Standalone Engines
- Implement patches for the database

Steps to Apply ABAP Support Packages Using Transaction SPAM



Transaction SPAM:

- Import SPAM/SAINT Update
- Define Support Package Queue
- Import Support Packages



ABAP-Components of SAP ECC, which can be updated using SPAM.

Component	Release	Support Package type	Short description of the component
SAP_BASIS	700	Basis Support Pkg.	SAP Basis Component
SAP_ABA	700	Appl. Interface SP	Cross-Application Component
PI_BASIS	2006_1_700	Add-on Support Pkg.	Basis Plug-In (PI_BASIS) 2006_1_700
ST-PI	2005_1_700	Add-on Support Pkg.	SAP Solution Tools Plug-In
SAP_BW	700	Add-on Support Pkg.	SAP NetWeaver BI 7.0
SAP_AP	700	Add-on Support Pkg.	SAP Application Platform
SAP_APPL	600	APPL Support Package	Logistics and Accounting
SAP_HR	600	HR Support Package	Human Resources
EA-TPPE	400	Add-on Support Pkg.	SAP TPPE
EA-GLTRADE	600	Add-on Support Pkg.	SAP Enterprise Extension Global Trade
EA-RETAIL	600	Add-on Support Pkg.	SAP Enterprise Extension Retail
EA-PS	600	Add-on Support Pkg.	SAP Enterprise Extension Public Services
FINBASIS	600	Add-on Support Pkg.	Fin. Basis
EA-FINSEV	600	Add-on Support Pkg.	SAP Enterprise Extension Financial Service
EA-HR	600	Add-on Support Pkg.	SAP Enterprise Extension HR
EA-DFPS	600	Add-on Support Pkg.	SAP Enterprise Extension Defense Forces &
EA-APPL	600	Add-on Support Pkg.	SAP Enterprise Extension PLM, SCM, Financ

Figure 190: Apply ABAP Support Packages Using Transaction SPAM

The use of transaction SPAM is explained in great detail in the course ADM100 – Administration AS ABAP I. The screenshots remind you how to apply ABAP Support Packages. In the example in the screenshots, only the BASIS and ABA Support Packages are applied to the SAP ECC system. There are several other Support Package types.

Steps to Apply Java Support Packages Using JSPM

You can use the Java Support Package Manager (JSPM) to apply support packages on deployed software components. You can also deploy SAP and third-party software components to which you can then apply support packages and patches. You can deploy new business packages of SAP Business Suite. You can also upgrade and update business packages of SAP Business Suite that are deployed on the system to a higher release and support package level respectively. In addition, JSPM detects SAP software components that have been modified and allows you to apply support packages to them.

SAP strongly recommends that you apply a particular Support Package Stack to a Java system as a whole. This ensures consistency on both the system and the application levels.

JSPM has the following features:



- Overview of deployed components
- Update of Kernel Binaries, Software Deployment Manager (SDM), Internet Graphics Server (IGS), and JSPM
- Deployment of:
 - support package stack
 - single support packages
 - SAP and third-party software components
 - deploy and upgrade business packages of SAP Business Suite
 - detects modified software components and transports them for deployment to SAP NetWeaver Development Infrastructure (NWDI)
 - Informs you if restarting of the AS JAVA is necessary during the deployment process



Hint: Only operating system user `<sid>adm` can use JSPM.

Make sure that all Support Packages to be applied are in the JSPM inbox. The JSPM inbox is a file system directory and resides at `DIR_EPS_ROOT/in`. `DIR_EPS_ROOT/in` is a profile parameter and can be defined in the central instance profile. The Support Packages for the kernel and other OS level binaries are delivered as SAR files. Make sure that your current SAPCAR tool is able to extract these files.

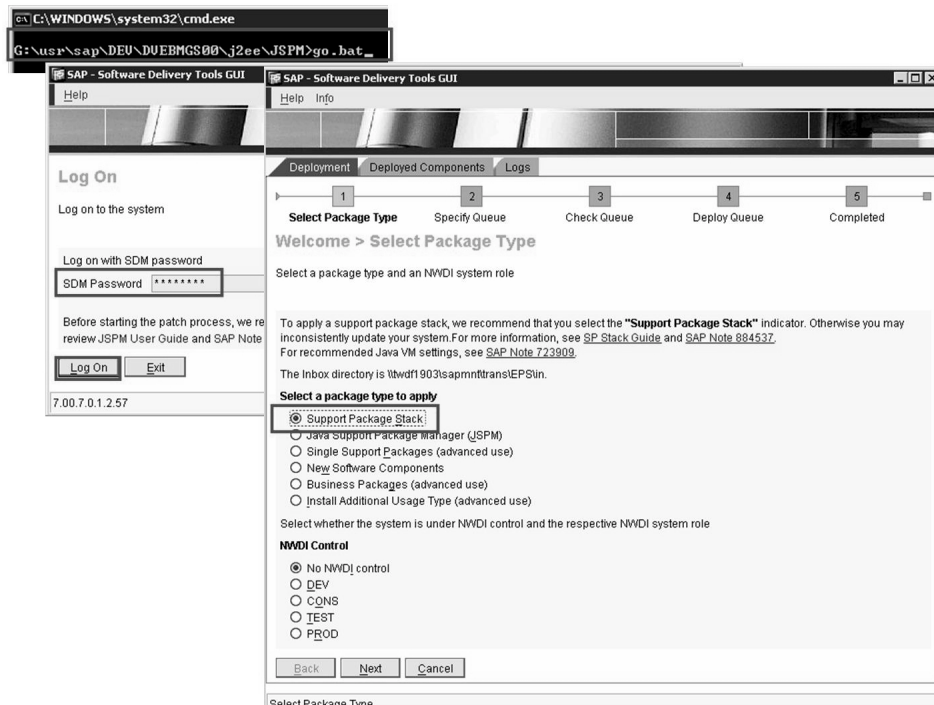


Figure 191: JSPM: Java Support Package 1/2

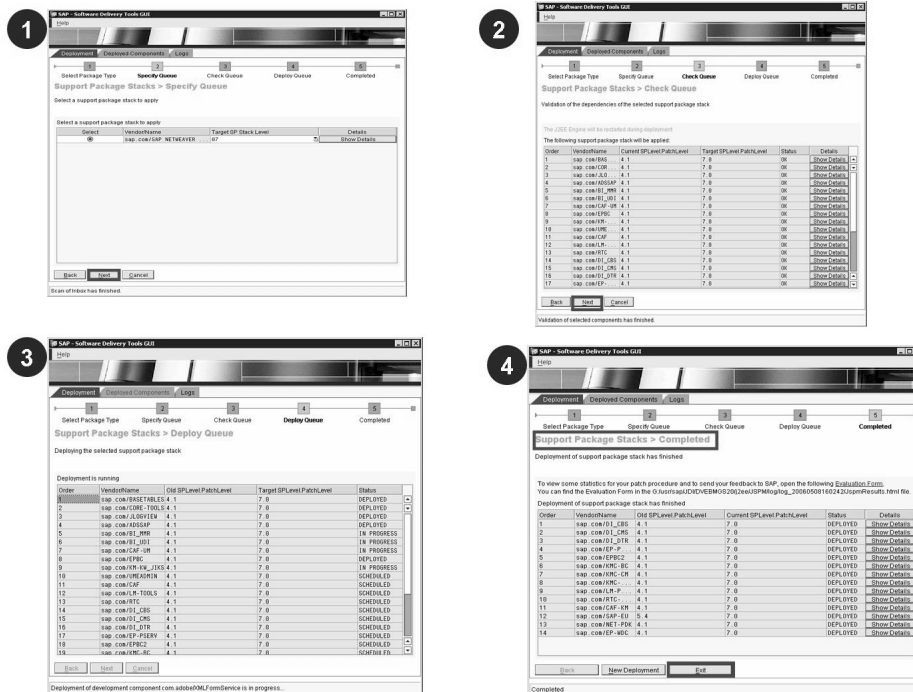


Figure 192: JSPM: Java Support Package 2/2

The use of tool JSPM is explained in great detail in the course ADM200 – Administration AS JAVA. The screenshots remind you how to apply Java Support Packages. In the example in the screenshots, an Support Package Stack is applied to the SAP ERP Central Component system.

Steps to Apply a Kernel Patch

Depending on your installed system you can use the Java tool *JSPM* (Java Support Package Manager) or the manual procedure to do an update of the Kernel.



- **manual update:** For all system based on AS ABAP (only)
- **JSPM:** For all system based on AS Java (including Add-In system)

Manual Update

When you apply a kernel patch manually, make sure that the following prerequisites are met:

- SAP system is stopped
- On Windows, the SAP services, including SAPOsCol, are stopped.

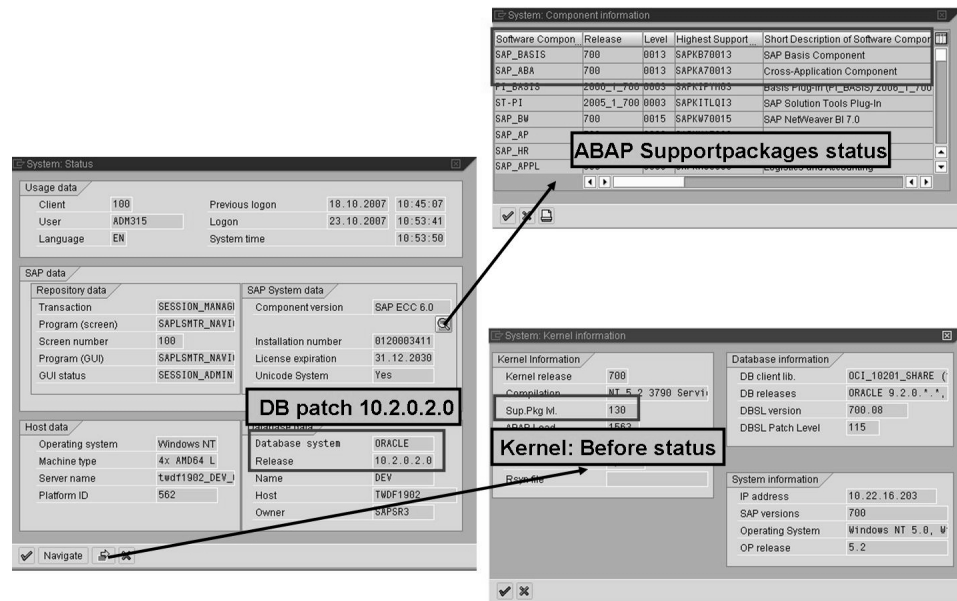


Figure 193: Show Patch Levels Kernel, ABAP Support Packages, and Database

The screenshots show the content of the *System → Status* of an SAP ERP Central Component system.

To update the kernel, follow the instructions given in the Support Package Stack Guide *SAP NetWeaver 7.0 Support Package Stack XX* (XX : Support Package Stack Level to be installed). This guide can be found on the SAP Service Marketplace <http://service.sap.com/instdguides> under *SAP NetWeaver → SAP NetWeaver 7.0 → Maintenance*.

As of SAP Netweaver 7.0 and related products, SAP introduces a new directory structure to improve the support of mixed platform configurations. The new directory structure is only created during new installations. SAP Note *919046 - Upgrade to the New Instance-Specific Directory Structure* describes how to configure upgraded SAP systems to the new directory structure.

The new directory structure consists of the following major changes:

- The directory `\\sapglobalhost\sapmnt\SAPSID\sys\exe\run` on the central instance is replaced with `\\sapglobalhost\sapmnt\SAPSID\sys\exe\codepage\platform` where *codepage* is UC for Unicode Systems, or NUC for non-Unicode systems, and *platform* is NTI386 (for 32 Bit Windows), NTAMD64 (for Windows X86_64), or NTIA64 (for Windows IA64 executables).
- The directory `\\sapglobalhost\sapmnt\SAPSID\sys\exe\runU` used by the Java Add-in instances is replaced with `\\sapglobalhost\sapmnt\SAPSID\sys\exe\UC\`
- The central instance uses an instance-specific executable directory (`\\sapglobalhost\saploc\SAPSID\DVEBMGS##\exe`)
- An instance should not directly use `\\sapglobalhost\sapmnt\SAPSID\SYS\exe\run`

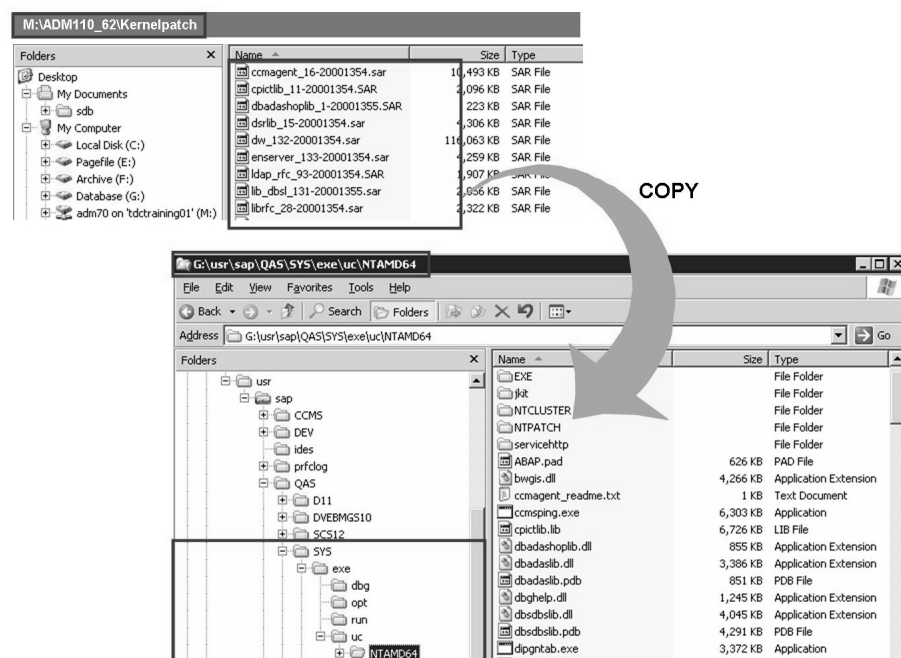


Figure 194: Applying a Kernel Patch manually

In the screenshots, you see that you will replace kernel files in the following directory:

`\\usr\sap\<SID>\SYS\exe\uc\NTADM64`



System: Status

Usage data			
Client	100	Previous logon	07.09.2007 08:42:46
User	ADM200	Logon	23.10.2007 16:18:25
Language	EN	System time	16:18:33

SAP data		SAP System data	
Repository data	Transaction: SESSION_MANAG	Component version	SAP Solution Mar
Program (screen)	SAPLSMTR_NAVI	Installation number	0120003411
Screen number	100	License expiration	31.12.2030
Program (GUI)	SAPLSMTR_NAVI	Unicode System	Yes
GUI status	SESSION_ADMIN		

Host data		Database data	
Operating system	Windows NT	Kernel Information	
Machine type	4x AMD64 L	Kernel release:	700
Server name	twd1903_QAS	Compilation	NT 5.2 3790 Servi
Platform ID	562	Sup.Pkg M.	132
		ADAP Load	1500
		CUA load	30
		Mode	opt
		Rsyn file	

Database information	
DB client lib.	SQLDBC 7.6.2.015
DB releases	MaxDB 7.6, MaxDB
DBSL version	700.08
DBSL Patch Level	130

System information	
SAP versions	700
Operating System	Windows NT 5.0, W
OP release	5.2

Kernel: After status

Figure 195: Kernel Patch Level After the Patch

The kernel patch in this example brought the kernel up to patch level 132, as can be seen in *System* → *Status*.

Apply Kernel Update using JSPM

Starting with SAP NetWeaver 7.0, the Java Support Package Manager (JSPM) is used for applying Support Packages to SAP NetWeaver Application Server Java (AS-Java) and all components running on top of it. JSPM is able to update all integral parts of a Java system, which includes Kernel and other native OS level binaries that are installed with the SAP NetWeaver AS Java. Additionally JSPM can update JSPM itself and all installed Java usage types in the system.

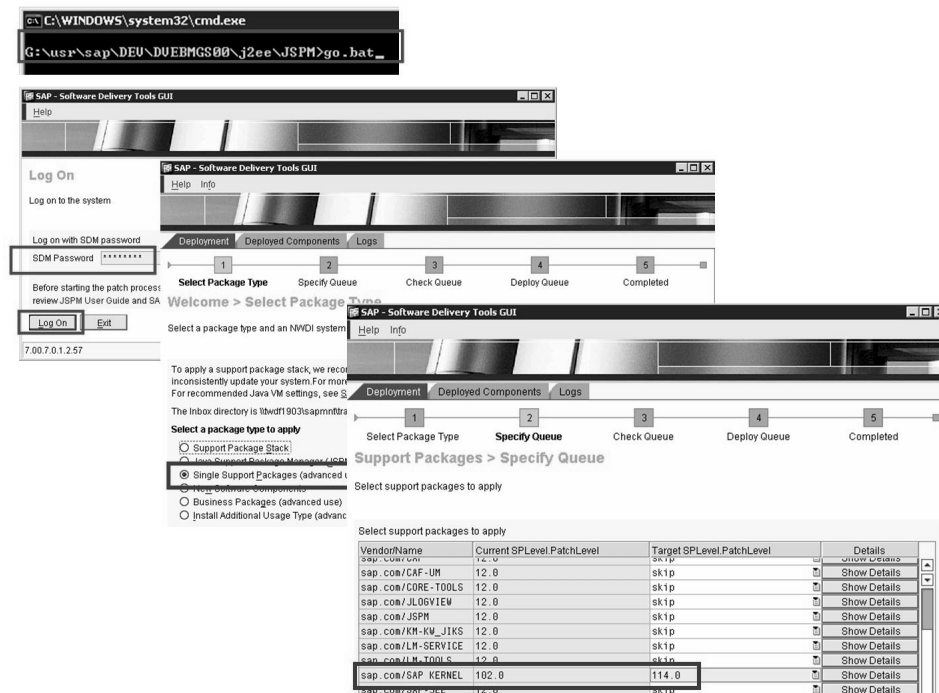


Figure 196: Apply a Kernel Patch using JSPM 1/2

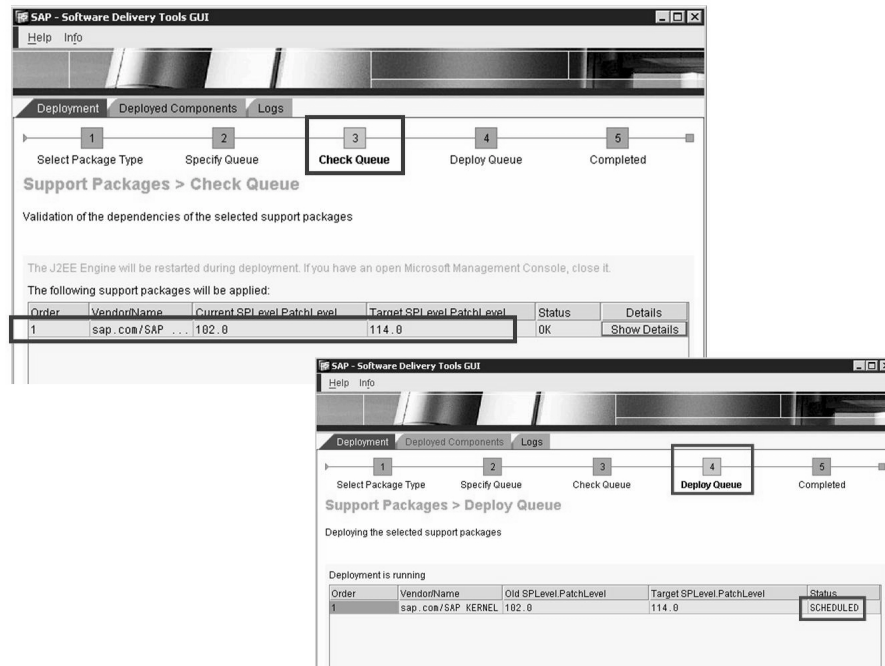


Figure 197: Apply a Kernel Patch using JSPM 2/2

Steps to Apply a Database Patch



- Download the latest database patch, <http://service.sap.com/patches>, to your server.
- Follow SAP note 735598 to install patches for MaxDB.
- Follow SAP note 544304 to install FixPaks for DB2 UDB;
- Follow SAP note 62988 to install Service Packs for Microsoft SQL Server.
- Follow SAP note 306408 to install Patches for Oracle9i Release 2 and Oracle Database 10g Release 1 (10.1). Follow SAP note 839182 to install Patches for Oracle 10.2.0.

Because different database releases might have different patch strategies, please check <http://service.sap.com/instguides> and go to *Other Documentation* → *Database Upgrades*.

There are different procedures to apply patches to the different databases supported by SAP systems. When applying patches, you will notice that databases from the same vendor can differ significantly between releases. As a result, ensure that you

are using the patch description that fits your database release. In addition, check the SAP notes in the figure before applying a database patch. The content of the notes might have been revised.

For DB2 on iSeries, go to <http://www.4soi.de/IBM-Infoapars.php>. For DB2 on zSeries, follow the instructions on how to fix the operating system. SAP note 81737 lists the operating system fixes that should be applied in an SAP environment.

Exercise 15: Applying Patches

Exercise Objectives

After completing this exercise, you will be able to:

- Apply a kernel patch
- Patch JSPM

Business Example

You are the system administrator of ABC Limited, a petrochemical company. You installed SAP ERP Central Component. Now, you need to apply a kernel patch.

Task 1: Patching the kernel

Apply manually a kernel patch to your newly installed ECC SAP system.

1. Check the current kernel patch level of your SAP system and apply the new Kernel.
2. Check the new kernel patch level of your SAP system.

Task 2: Patching JSPM

Patch JSPM to SP12 or higher.

1. Copy the JSPM support package from *G:\ADM110\SPs & Patches\JSPM* to *g:\usr\sap\trans\EPS\in*.
2. Patch JSPM.

Task 3: OPTIONAL: Apply kernel patch using JSPM

Apply a Kernel patch using JSPM.

1. Apply a kernel patch in your new installed SAP NetWeaver System. Check the current kernel patch level of your system.
2. Apply the new Kernel Patch using JSPM.
3. Check the new patch level.

Solution 15: Applying Patches

Task 1: Patching the kernel

Apply manually a kernel patch to your newly installed ECC SAP system.

1. Check the current kernel patch level of your SAP system and apply the new Kernel.
 - a) Use *System* → *Status* and choose *Other kernel info* → *Sup.Pkg lvl* to find information.

Alternatively, you can start transaction SM51, select one instance, and choose *Release* notes. You find the kernel patch level under Kernel patch number.
 - b) You find the patch to be applied at the following location:

Proceed as described during the lesson.

You can find the new kernel in directory *M:\ADM110_62\Kernel_Patch*
2. Check the new kernel patch level of your SAP system.
 - a) See solution for step1.

Task 2: Patching JSPM

Patch JSPM to SP12 or higher.

1. Copy the JSPM support package from *G:\ADM110\SPs & Patches\JSPM* to *g:\usr\sap\trans\EPS\in*.
 - a) follow step description
2. Patch JSPM.
 - a) Start JSPM and choose *Single Support Package*. Navigate through the following steps.
 - b) After JSPM is finished, choose *Exit*.
 - c) Restart JSPM to verify if it is on the new SP.

Continued on next page

Task 3: OPTIONAL: Apply kernel patch using JSPM

Apply a Kernel patch using JSPM.

1. Apply a kernel patch in your new installed SAP NetWeaver System. Check the current kernel patch level of your system.
 - a) Start JSPM and choose *Single Support Package*.
 - b) Navigate to step *Specify Queue*. Go to entry *sap.com/SAP Kernel* and check column *Current SP Level Patch Level*.
2. Apply the new Kernel Patch using JSPM.
 - a) Follow the instructions given in the training material in section *Apply Kernel Update using JSPM*.



Hint: You can find the new kernel in directory *G:\ADM110\SPs & Patches\Kernel*

Copy the files to *g:\usr\sap\trans\EPS\in*, then start JSPM.

3. Check the new patch level.
 - a) Start JSPM and choose *Single Support Package*.
 - b) Navigate to step *Specify Queue*. Go to entry *sap.com/SAP Kernel* and check column *Current SP Level Patch Level*.



Lesson Summary

You should now be able to:

- Discuss what a Support Package Stack is
- Describe the steps to apply kernel patches
- Describe the steps to apply Java support packages
- Describe the steps to apply ABAP support packages

Lesson: Other Tools in Software Lifecycle Management

Lesson Overview

This lesson provides you with an overview of other tools involved in software lifecycle management..



Lesson Objectives

After completing this lesson, you will be able to:

- List other tools involved in the software lifecycle management environment

Business Example

Alongside tools for the installation and import of patches, other tools are involved in software lifecycle management such as Software Deployment Manager (SDM), jload, SAPjup.

The Software Deployment Manager (SDM)

The Software Deployment Manager (SDM) is used by a large number of tools in the AS Java environment. It is responsible for deploying software in AS Java and is therefore used in close conjunction with NWDI, JSPM, etc. SDM is also the tool with which you can manage and “deploy” the special software packages that you receive from SAP and other providers. Deployment is the last step in the delivery process of software; that is, the transfer of the supplied software packages – SDAs, SCAs or other J2EE archives – into the runtime environment of the SAP systems.



Hint: The Software Deployment Archive (SDA) is the delivery format for SAP AS Java-based applications. It is a ZIP-compatible archive format. The SDA contains the manifest information; that is, package-related data for the archives contained in it (such as jar, war) and an SAP manifest that contains the additional information required for software logistics. An SDA is the smallest unit that can be supplied for deployment. The SDA also represents the smallest unit for which patches can be created and delivered.

A Software Component Archive (SCA) is the physical representation of a status of a software component. It contains a specific number of SDAs, the set of which describes a precisely-defined version status. An update of an SCA always results in a newer version status of the software component.

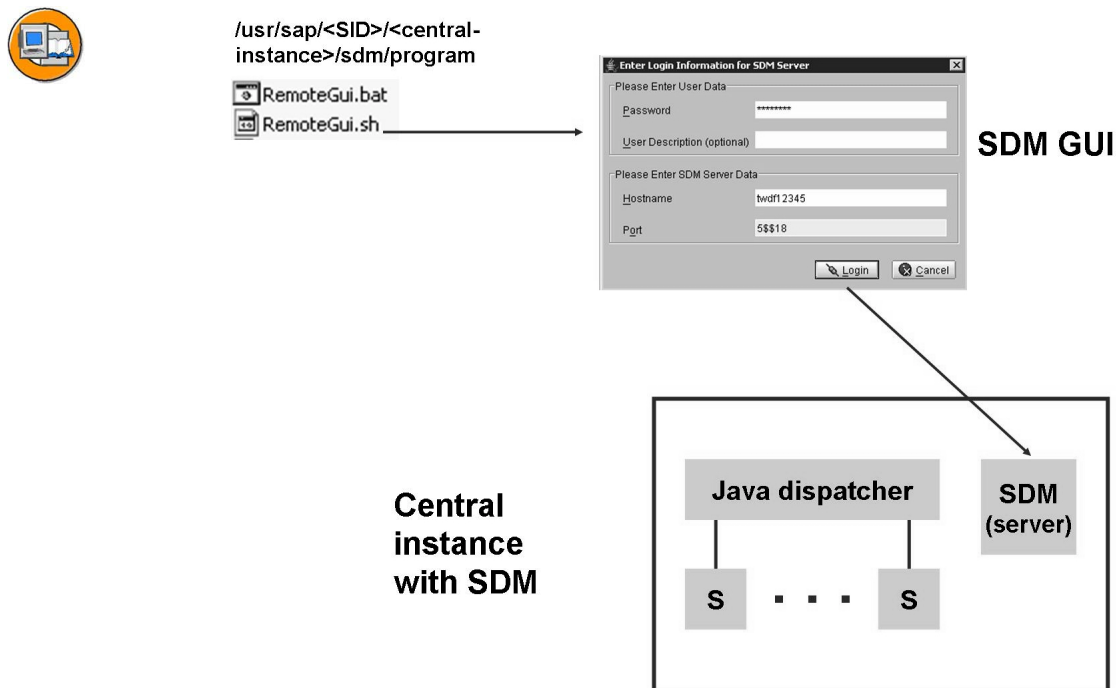


Figure 198: SDM Gui-to-SDM Server Connection

The SDM is a client/server application. On the AS Java side there runs the SDM server that is started by the central instance of the AS Java automatically. The client provides a graphical user interface which you can start using the script *RemoteGui.bat* or *RemoteGui.sh* via the file system */usr/sap/<SID>/<central instance>/sdm/program*.



/usr/sap/<SID>/<centralinstance>/sdm/program/RemoteGui.bat or RemoteGui.sh

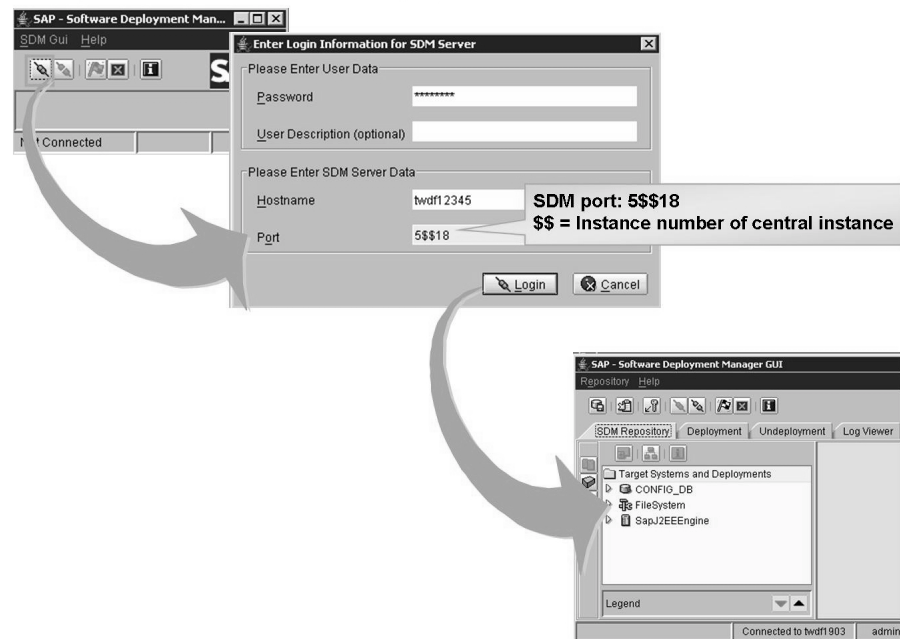


Figure 199: SDM Gui: Login

The deployment of SDAs/SCAs using the Software Deployment Manager stores the data in the SDM repository, with which the SDM controls the management of the installed archives. The SDM also identifies dependencies between archives and therefore offers support for the software lifecycle tools during installation and maintenance.

You can reset the SDM password in the SDM Gui after logging on. If you can no longer log on at the SAP Gui because you do not know the password, it is necessary to set the SDM password at operating system level by means of SDM commands.



Logon to the SDM Gui possible



Logon to the SDM Gui NOT possible

SDM commands on operating system level:

1. stopserver
2. sdm jstartup "mode=standalone"
3. sdm changepassword "password= "
4. sdm jstartup "mode=integrated"
5. startserver

Figure 200: Changing the SDM Password



Hint: If you change the password of the SDM, this can also have consequences for the automatic access to the SDM for other tools, such as the SAP NetWeaver Developer Studio.

Copying and Migrating Systems

In various situations during your Solution Lifecycle, it may be useful to copy or migrate a system. SAP recommends that you make a system copy if you want to set up a test, demonstration or training system. You must also perform a system copy if you want to change your operating system or database.

You can find additional information about copying systems in the SAP Service Marketplace under <http://service.sap.com/systemcopy>.

**Note:**

- In NetWeaver 04 and below (SAP Web Application Server 6.40), it was only possible to perform system copies of ABAP systems.
- With NetWeaver 04 SR1 (SAP Web Application Server 6.40 SR1), you can also perform system copies for a Java add-in in an ABAP system as well as for Java standalone systems.
- In NetWeaver 2004s, you can include not only an ABAP or Java standalone system but also a system consisting of an ABAP and Java stack in this operation.

You create the following types of system copy:

- You perform a **homogeneous system copy** when your target system runs on the same operating system and the same database system as your source system.. The contents of the database are copied from the source to the target system.
- You perform a **heterogeneous system copy** when you want to change the operating system or database system. The term migration is a synonym for heterogeneous system copy.

You can use the following procedures/methods for the two types of system copy:

- Database-specific method: homogeneous system copies only
- Database-independent method: homogeneous and heterogeneous system copies

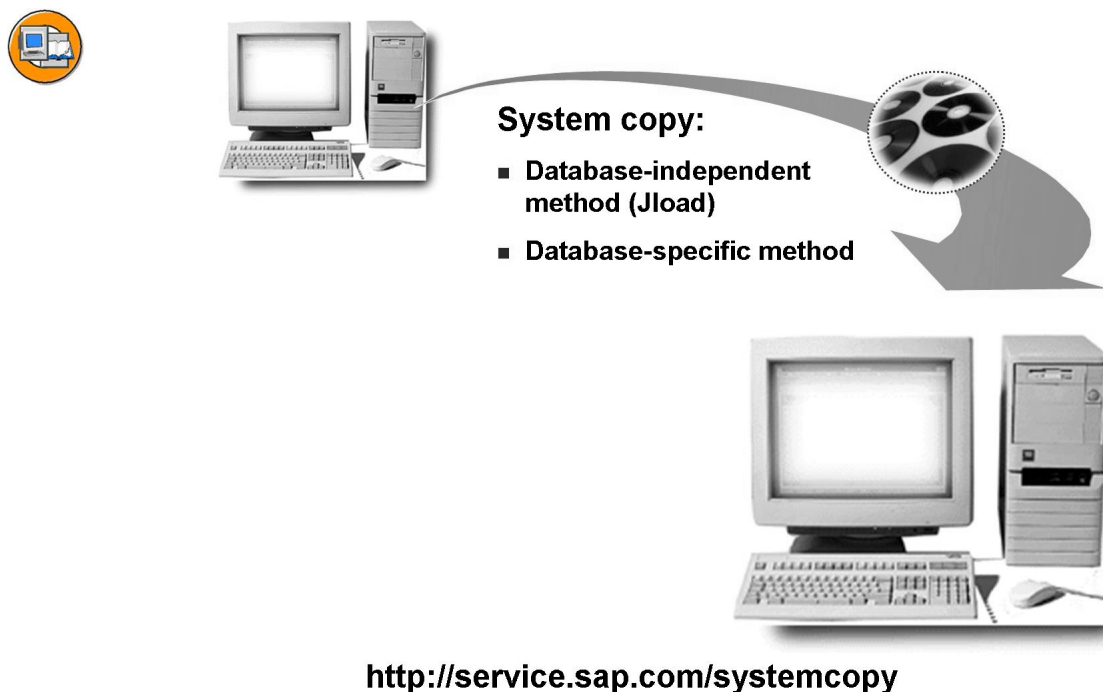


Figure 201: System Copy

Database-specific methods are not available for all database systems. For more information, see the corresponding guidelines on copying systems under <http://service.sap.com/systemcopy>. You can use the SAP installation tool *SAPinst* to create exports and imports of the contents of your Java database, the file system and the configuration in database-independent format.

SAPinst uses the tool **Jload**. Jload generates a database export of all the SAP objects which are defined in the Java Dictionary and archives the configuration and file system components.

A Java-based system consists of data which is stored in the database and in the file system. The Software Deployment Manager (SDM) is stored in the file system. Every SAP instance possesses a unique ID which is stored in the database.

➔ **Note:** SAP Note 970518 lists the Java components based on SAP NetWeaver 7.0 SR2 which are released for system copies.

SAP Release Upgrade

SAP supplies high-performance tools (SAPup and SAPJup) and sophisticated procedures for upgrading an SAP system. SAP constantly enhances these tools and procedures in order to ensure seamless upgrade operations.

The SAPup tool is used to upgrade AS-ABAP-based SAP NetWeaver systems. In contrast, SAPJup is the right tool for upgrading AS Java-based SAP NetWeaver systems.



SAP supplies high-performance tools and sophisticated procedures for upgrading SAP systems.



SAPJup is used for upgrading an AS Java system

<http://service.sap.com/upgradetech>

Figure 202: SAPJup



Lesson Summary

You should now be able to:

- List other tools involved in the software lifecycle management environment

Lesson: SAP Notes and Support Packages

Lesson Overview

This lesson provides an introduction to the subject of SAP Notes and Support Packages.



Lesson Objectives

After completing this lesson, you will be able to:

- Describe the concept of SAP Notes and Support Packages.
- Explain the concept of the Support Package Stack and the Maintenance Optimizer.

Business Example

After you have installed your SAP system, you want to import adjustments that have been made in response to changes in legal requirements, and correct any errors that may have been made. SAP provides SAP Notes and Support Packages for this purpose.

SAP Notes and Support Packages

An SAP system comprises various software components. These components receive regular updates through SAP Notes and Support Packages. SAP Notes and Support Packages are used to import adjustments based on changes in legal requirements, correct errors and also enhance some existing functions, or make new functions available.

The SAP system should always have the most recent release level, to comply with legal requirements on the one hand, and to eliminate errors that remain in the standard system on the other.



Example: SAP ECC 6.0

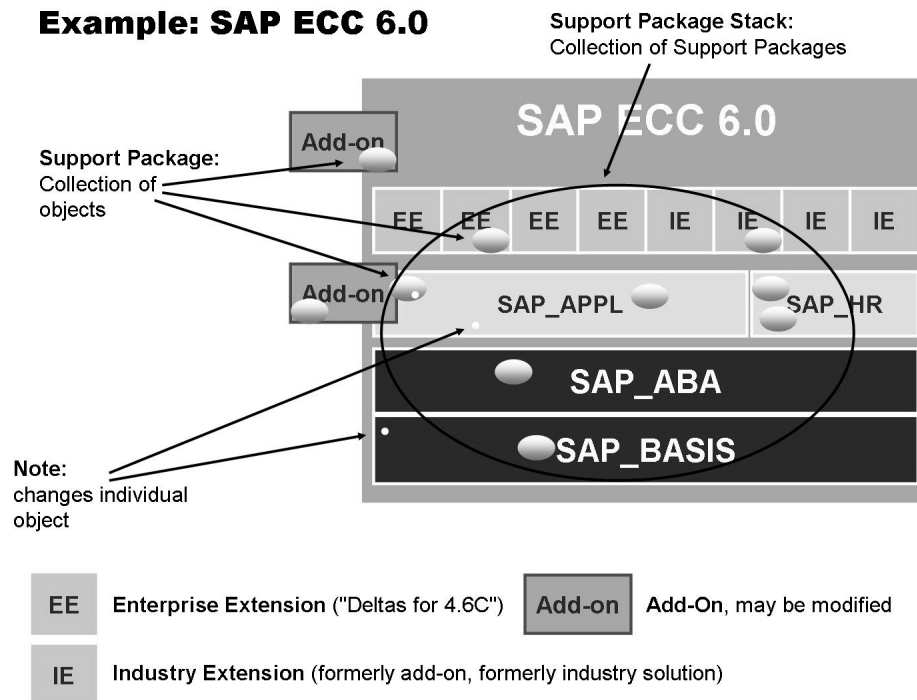


Figure 203: SAP Notes and Support Packages

SAP Notes can contain general information, hints and tips, or recommendations from SAP. They can also describe a problem and the solution to errors in standard functions of SAP software. This type of SAP Note contains the solution to an individual problem, which is often the solution to a programming error, in the form of corrected lines of source code.

Support Packages are bundles of repository objects and Customizing. In principle, each software component and each release level has its own support packages. In the case of software components that intersect (with modified add-ons, for example), there is an additional type of Support Package, the Conflict Resolution Transport (CRT). Technically speaking, Support Packages are a type of transport request that cannot be imported as a normal transport request, however. A Support Package contains all known, relevant SAP Notes that have been created since the last Support Package. It can also contain new Customizing and Customizing that has been corrected since the last Support Package. Support Packages are thus not cumulative, but are based on their predecessors.

Support Packages are imported with the Support Package Manager (transaction SPAM). SAP Notes are implemented with the Note Assistant (transaction SNOTE).

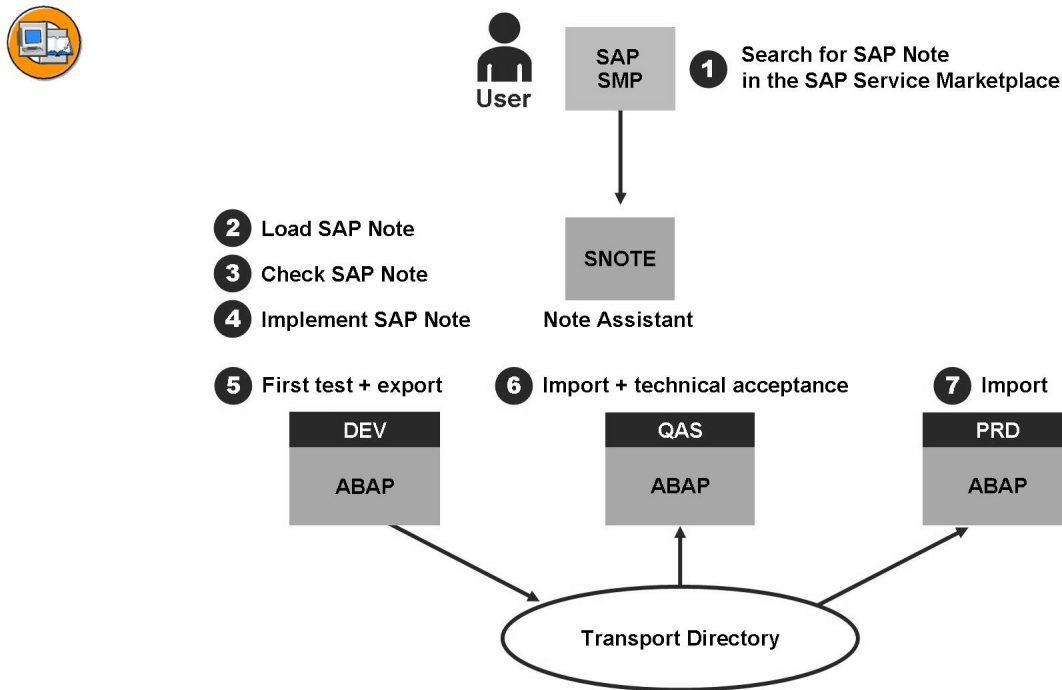


Figure 204: Note Assistant

The Note Assistant is called with the transaction SNOTE. It has been part of the standard system since Basis release 6.10. In earlier releases, you can import it as an additional software component, an add-on.

The current version of the Note Assistant can implement various types of SAP Notes: Changes to SAP programs, the creation of new SAP programs, changes to SAP function modules and several other things besides. It cannot, however, change Dictionary objects, for example. Furthermore, the Note Assistant can only change repository objects, not Customizing, for example.

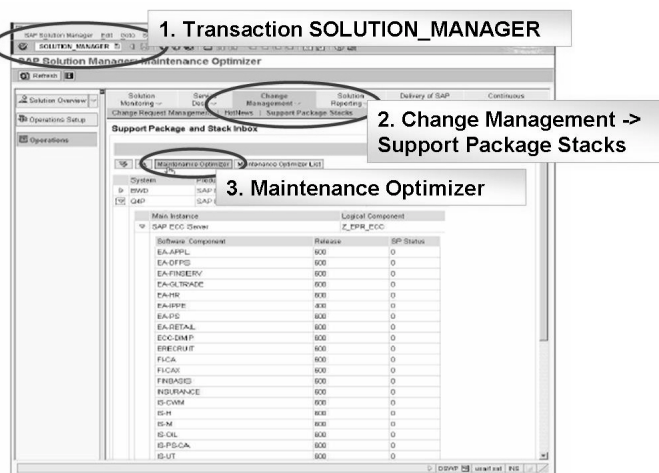
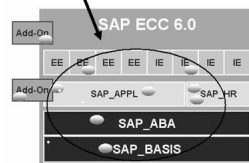
SAP Notes are implemented with the Note Assistant in the following steps:

1. You have to localize the required SAP Notes on the SAP Service Marketplace, for example, by searching for keywords or selecting the unique SAP Note number, if you know it.
2. You can then load these SAP Notes to the development system with the Note Assistant.
3. The SAP Notes are checked by the Note Assistant here. It checks whether the release named in the SAP Note and the Support Package level is correct, whether the SAP Note requires other SAP Notes before it can be implemented, whether it can be implemented due to other modifications that may exist, and so on.
4. The SAP Note is implemented by pressing the import pushbutton. This creates a transport request.
5. The result of implementing the SAP Note is tested in a general way in the development system.
6. If this test is successful, the transport request is imported to the quality assurance system. The technical acceptance is performed here.
7. If this is also successful, the transport request is imported to the production system, where it can be used directly.



All Support Packages and Support Package Stacks for systems based on SAP NetWeaver 7.0 (and above) require the Maintenance Optimizer.

Support Package Stack



Maintenance Optimizer in the Solution Manager

Figure 205: Support Package Stacks and Maintenance Optimizer

In principle, importing Support Packages for one particular software component is independent of the Support Packages for other software components. The individual components are in general independent of one another. However, there can be cases where the importing of individual Support Packages leads to side-effects. Importing an HR Support Package can require the previous import of a BASIS Support Package, or an APPL Support Package, for example. As soon as they have been identified, these side-effects are documented in a composite SAP Note.

To enable patches to be implemented consistently in different software components, SAP recommends you import Support Packages using Support Package Stacks. Support Package Stacks are thus recommended combinations of Support Packages for different software components. Support Package Stacks are not alternative, special patches, but recommended combinations of normal Support Packages. Support Package Stacks are available for the various SAP applications and for SAP NetWeaver components. In addition to Support Packages, they mostly contain recommendations for patching other components, such as kernel patches for patching the ABAP runtime environment.

The problem of how to patch a complex landscape frequently arises, as well as the question of how to actually use the Support Package Stack for orderly, documented patching. What is the current patch status of my system landscape? Where can I find the necessary Support Packages and the Support Package Stack information? The Maintenance Optimizer provides the solution to these questions. With the Maintenance Optimizer you can request the Support Package Stacks required for the landscapes defined in the Solution Manager in a controlled and manageable way.



Note: The Maintenance Optimizer is mandatory for some Support Packages and Support Package Stacks, such as the Support Packages for SAP ECC 6.0 that have been available since April 2007.



Lesson Summary

You should now be able to:

- Describe the concept of SAP Notes and Support Packages.
- Explain the concept of the Support Package Stack and the Maintenance Optimizer.

Lesson: Support Package Manager (SPAM)

Lesson Overview

In this lesson you will be introduced to the Support Package Manager. You will learn what a SPAM/SAINT update is and how to import it. A SPAM/SAINT update may be required before you can import new Support Packages.



Lesson Objectives

After completing this lesson, you will be able to:

- Explain the use of the Support Package Manager and import a SPAM/SAINT update.

Business Example

Functional enhancements of the system can affect not only the applications, but also the tools with which you import the Support Packages.

SPAM/SAINT Update

As well as the standard software components of an SAP system, additional components can be imported afterwards, if required. These are referred to as add-ons. Examples of add-ons are plug-ins or industry-specific components (industry solutions) that do not form part of the standard system. These add-ons are imported with the help of the Add-On Installation Tool (transaction SAINT). The Add-On Installation Tool and add-ons themselves will not be dealt with in detail in this lesson.

The tool for importing Support Packages is the Support Package Manager. You can call it using the transaction SPAM.

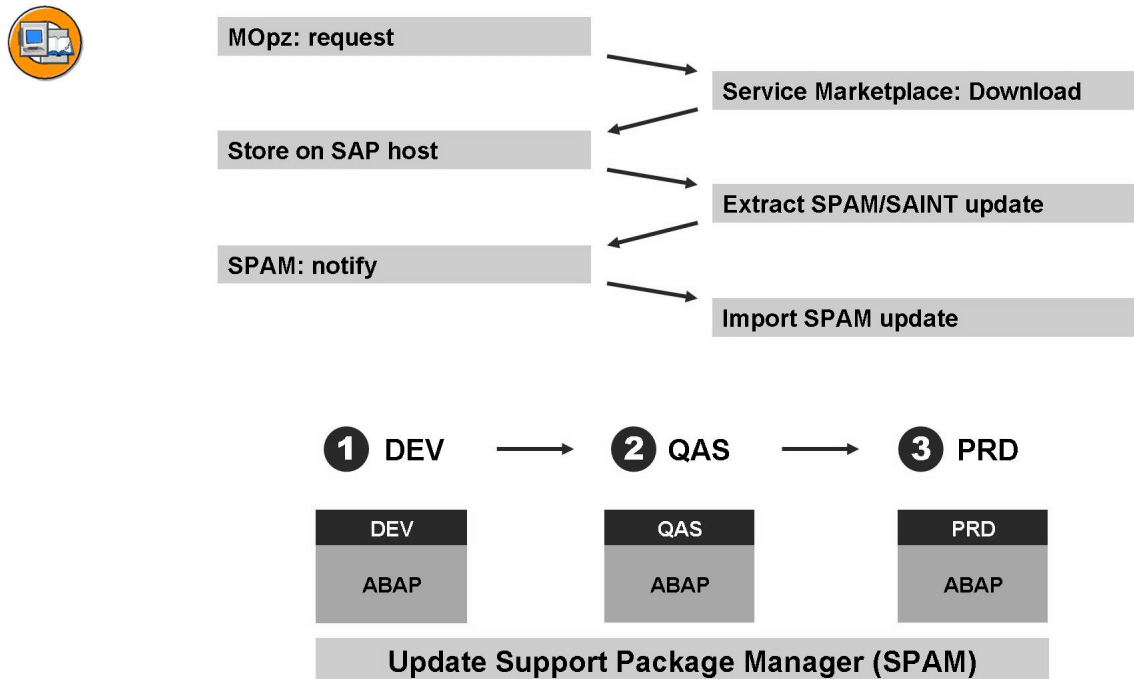


Figure 206: Support Package Manager: SPAM/SAINT Update

The Support Package Manager offers the following functions:

- Load Support Packages: You can load Support Packages from the SAP Service Marketplace and from collection DVDs to the SAP system.
- Import Support Packages
 - Restart capability: When the Support Package Manager imports a Support Package into the system, it follows a fixed sequence of steps. If the implementation of the Support Package terminates, processing can recommence at the break-off point. The process restarts at the point at which it was terminated.
 - Display the import status: The Support Package Manager can inform you about the system status at any time.
 - Special import procedure: A special import procedure keeps downtime to a minimum. (*Import mode: Downtime-minimized*)
 - Start time control: The separate phases of the Support Package Manager are condensed into modules. You can determine the start times of the modules individually.
 - Background processing: The individual modules can also be scheduled for background processing.

The Support Package Manager can recognize dependencies between Support Packages and take account of these (but not the side-effects, however). To remain up-to-date and be able to use new functions of the Support Package Manager too, you should patch the Support Package Manager itself before you import Support Packages. Since the transactions SPAM and SAINT are closely related from a technical point of view, a shared patch is supplied at regular intervals to patch the tools: The SPAM/SAINT update. You can find out the version from the short description of the transaction SPAM, for example: *SPAM/SAINT update - version <Rel>/0024*.



Hint: The update for the Support Package Manager (SPAM/SAINT update) is only delivered in German and English. You are therefore recommended to log on in English or German when working with the Support Package Manager.

The SPAM/SAINT update is imported using the transaction SPAM.

You can only import a SPAM/SAINT update if there are no aborted Support Packages in the system. If there are aborted Support Packages, a dialog box informs you of this. You then have two options:

- You first import the complete queue and then the SPAM/SAINT update.
- You reset the status of the queue, import the SPAM/SAINT update first and then the queue. You can reset the status of the queue by choosing *Extras → Reset Status → Queue*.

Procedure for importing a SPAM/SAINT update:

1. Check whether the SPAM/SAINT update currently offered on the SAP Service Marketplace is newer than the one imported to the system (the current SPAM/SAINT version is displayed in the title bar of the Support Package Manager).
2. Download the latest SPAM/SAINT update from the SAP Service Marketplace.
3. Extract the downloaded file to the transport directory of the relevant SAP system, subdirectory *EPS*, subdirectory *in*.
4. Log on to the SAP system in client *000* and call the transaction SPAM.
5. Communicate the patch (the SPAM/SAINT update) to the Support Package Manager: *Support Package → Load Packages → From Application Server*. This is simply a notification for the Support Package Manager and does not import the SPAM/SAINT update.
6. To import the SPAM/SAINT update, choose *Support Package → Import SPAM/SAINT Update*.

In a multi-system landscape you have to carry out this import procedure in each system. In a three system landscape, the most practical sequence is development system, quality assurance system, and then production system.

Exercise 16: SPAM Update

Exercise Objectives

After completing this exercise, you will be able to:

- Import a SPAM/SAINT update successfully

Business Example

To import Support Packages, you often need to update the tool that you are using for the import first. This may be necessary in order to read current attributes from the new Support Package, for example.

Task: Importing a SPAM/SAINT Update

Import a SPAM/SAINT update.



Caution: This exercise must be performed by the DEV group first and then by the QAS group.

In the first step, a SPAM/SAINT update is imported into the SAP system DEV. After it has been imported successfully, the SPAM/SAINT update is imported into the SAP system QAS.

Your instructor will show you the file you require for the SPAM/SAINT update.

1. Check the current SPAM version in your system.
2. Extract the file that contains the SPAM/SAINT update at operating system level.
Remember that this step only needs to be performed once for each transport directory.
3. Log on to the correct client.
4. Load the patch using transaction SPAM; that is, declare the file to the SAP system.
5. Import the SPAM/SAINT update into your system. Note any possible errors.
6. Check the import process log for errors.

Solution 16: SPAM Update

Task: Importing a SPAM/SAINT Update

Import a SPAM/SAINT update.



Caution: This exercise must be performed by the DEV group first and then by the QAS group.

In the first step, a SPAM/SAINT update is imported into the SAP system DEV. After it has been imported successfully, the SPAM/SAINT update is imported into the SAP system QAS.

Your instructor will show you the file you require for the SPAM/SAINT update.

1. Check the current SPAM version in your system.
 - a) Call transaction SPAM. The SPAM version is displayed in the title bar, for example: "Support Package Manager - Version 7.00/0024".

To see whether SPAM/SAINT updates have already been imported, select the *Imported Support Packages* radio button and choose *Display*. The system displays an overview of the previously imported SPAM/SAINT updates.



Note: You can also jump individual SPAM/SAINT updates, which means you can change directly from version 7.00/0018 to 7.00/0024.

2. Extract the file that contains the SPAM/SAINT update at operating system level.

Remember that this step only needs to be performed once for each transport directory.

- a) Go to operating system level. Copy the file *KD700<nn>.CAR* to the transport directory, for example *G:\usr\sap\trans*. *<nn>* stands for the (latest) version of the SPAM/SAINT update.

At operating system level, open a command prompt in the transport directory and extract the file you have just copied with the command **sapcar -xvf KD700<nn>.CAR**. This extracts the file to the directory *\EPS\in*. It should now be in *G:\usr\sap\trans\EPS\in*, for example.

Continued on next page

3. Log on to the correct client.
 - a) Log on to client 000. You can only import a SPAM/SAINT update from client 000.
4. Load the patch using transaction SPAM; that is, declare the file to the SAP system.
 - a) Transaction SPAM: *Support Package* → *Load Packages* → *From Application Server*. Confirm the dialog box to upload.
5. Import the SPAM/SAINT update into your system. Note any possible errors.
 - a) In transaction SPAM, choose *Support Package* → *Import SPAM/SAINT Update*. Confirm the dialog box to import. Then call transaction SPAM again. This takes some time, since the system must regenerate the underlying programs and so on, due to the SPAM/SAINT update.
6. Check the import process log for errors.
 - a) In transaction SPAM, choose: *Goto* → *Import Logs* → *SPAM/SAINT Update*. No errors should be displayed.



Lesson Summary

You should now be able to:

- Explain the use of the Support Package Manager and import a SPAM/SAINT update.

Lesson: Importing Support Packages

Lesson Overview

In this lesson you will learn how Support Packages are imported into your systems.



Lesson Objectives

After completing this lesson, you will be able to:

- Import Support Packages with transaction SPAM
- Provide a general explanation of the import process for Support Packages

Business Example

Importing Support Packages is a task for the SAP system administrator. The new versions of SAP objects in the Support Packages stabilize and extend the functional scope of the SAP system.

Importing Support Packages

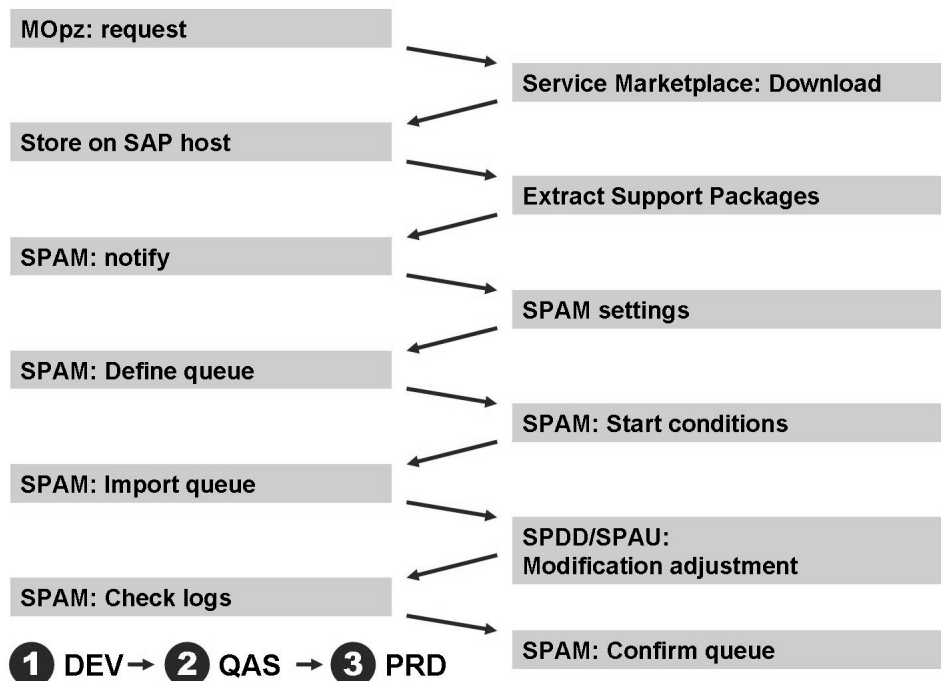


Figure 207: Importing Support Packages

The **Support Package Stacks** represent combinations of Support Packages recommended by SAP for the respective product version, and you are advised to import these regularly.

When importing Support Packages you should observe the instructions for the Support Package Stack and import all the Support Packages in the Support Package Stack, if possible. A kernel patch often forms part of the Support Package Stack too. This should be implemented before you import the Support Package (not covered in this

lesson). Since April 2007, the Maintenance Optimizer is used to request Support Packages (not covered in this lesson). For some Support Packages, this is mandatory. The procedure for importing Support Packages should be as follows:

1. If you have not done so already, import the latest SPAM/SAINT update.
2. Download the required Support Packages from the SAP Service Marketplace.
3. Extract the downloaded files to the transport directory of the relevant SAP system, subdirectory *\EPS\in*.
4. Log on to the SAP system in client *000* and call the transaction SPAM.
5. The new Support Packages are declared to the Support Package Manager: *Support Package → Load Packages → From Application Server*. This is simply a notification for the Support Package Manager and does not import the Support Packages. If the compressed files are on the front-end server and are smaller than around 10 MB, you can also transfer these files to the application server host and decompress them directly from the Support Package Manager. With files that are larger than approximately 10 MB in size, this method is inefficient, since it is too slow.
6. Make settings for the import procedure (see below).
7. You define the queue for the Support Packages to be imported. This can comprise Support Packages for one software component as well as Support Packages for several components. The Support Package Manager checks the consistency of the queue. The Support Package Manager ensures that only Support Packages that match the system are displayed in the queue. Support Packages that are intended for a different release or a software component that is not installed do not appear in the queue, even if you have loaded them into your SAP system.
8. To import the Support Package queue, choose *Support Package → Import Queue*.
9. Choose the start conditions for the 4 modules (see below).
10. Start the import process. One or two modification adjustments may arise during the import (see below).
11. Once the Support Packages have been imported successfully, check the logs: *Goto → Import Logs → Queue*.
12. After the Support packages have been imported to the development system, the developers can check the objects. After the Support Packages have been imported to the quality assurance system, an acceptance test should be carried out by subject matter specialists.
13. Once the test has been passed, the imported queue has to be confirmed: *Support Package → Confirm*

There are a number of possible settings for the import procedure (*Extras* → *Settings*). Under *Scenario* you determine the actions to be carried out during the import:

- **Standard:** The standard scenario is used to import Support Packages completely; all steps are performed. The import mode *Downtime-minimized* can be used here (see below).
- **Test:** You can use the test scenario to determine before the actual import of the Support Package whether a modification adjustment is required or whether conflicts occur that must be removed before the import. No data and objects are imported to the SAP system during the test scenario.

There is no test scenario for SPAM/SAINT updates. The selection you make here is ignored when importing a SPAM/SAINT update.

There are many steps (phases) to the import procedure. These are subdivided into 4 modules.

- The modules can be executed individually.
- The modules can be started in a background process.
- The start time of the module can be controlled flexibly.

The 4 modules execute the following steps:

1. **Preparation** module: All the preparatory steps and check steps (such as the test import, add-on conflict check) are performed in this module. The module can run during production operation. Once the preparation module has been completed, you still have the option of resetting or deleting the queue. If you continue with the Import 1 module, data is changed on the database and the queue can no longer be reset or deleted.
2. **Import 1** module: In this module, the objects in the Support Packages are imported. This includes the import of programs. If the import procedure is carried out in **Downtime-minimized** mode, the programs are inactive when they are imported. The runtime system cannot “see” these changes yet. Directory objects are inactive when imported, independent of the import mode. The manual modification adjustment of the Dictionary objects takes place at the end of this module, if required. If you can guarantee that no manual changes are required and no transports are imported into the system, this module can run with the **Downtime-minimized** import mode during production operation too. These conditions are normally given in the production system. If you not selected **Downtime-minimized**, this module represents a downtime in the corresponding system.
3. **Import 2** module: In this module, the remaining import steps are carried out, including the activation of inactive Dictionary name tabs, move name tab and conversion steps. If you use the **Downtime-minimized** import mode, inactive programs are activated in this module as well. Production operation must not take place while this module runs, in order to avoid inconsistencies and data loss. Consequently, this module definitely results in system downtime.
4. **Clean up** module: In this module, all the follow-up steps are processed. In particular, the modification adjustment of the non-Dictionary repository objects take place in this module. When all modifications have been adjusted, production operation can continue.



without 'Downtime minimized'



with 'Downtime minimized'

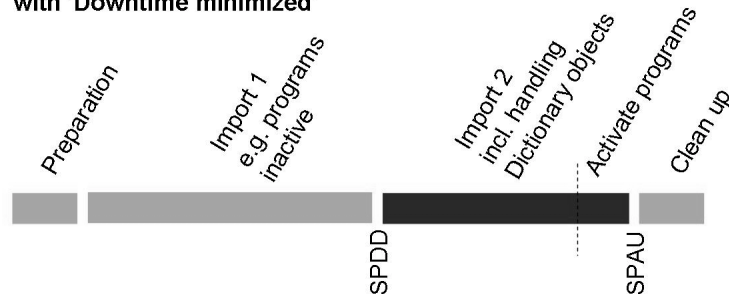


Figure 208: Import Mode Downtime-minimized

With the **Downtime-minimized** import mode, the ABAP programs in the *Import 1* module are inactive when imported.

Advantages of the Downtime-minimized import mode: Since you can stop the import of Support Packages after each module, you can run the *Preparation* and *Import 1* modules during production operation if no modifications to Dictionary objects have taken place. After the scheduled switch to non-production operation, you can run the *Import 2* module and the modification comparison, if required. After that, production operation can resume.



Note: You can considerably reduce system downtime by selecting Downtime-minimized. This makes the import procedure as a whole longer, however, since you still need to activate the ABAP programs.

The setting for the Downtime-minimized import mode also has an influence on the default setting for the start conditions of the four import modules.

If you selected the conventional import procedure (Downtime-minimized import mode not activated), the following settings appear by default:

1. Preparation: Start in Dialog Immediately
2. Import 1: Continue in Dialog Immediately
3. Import 2: Continue in Dialog Immediately
4. Clean up: Continue in Dialog Immediately

If you selected the Downtime-minimized import mode, the following settings appear by default:

1. Preparation: Start in Dialog Immediately
2. Import 1: Continue in Dialog Immediately
3. Import 2: Continue Manually
4. Follow-up: Continue Manually

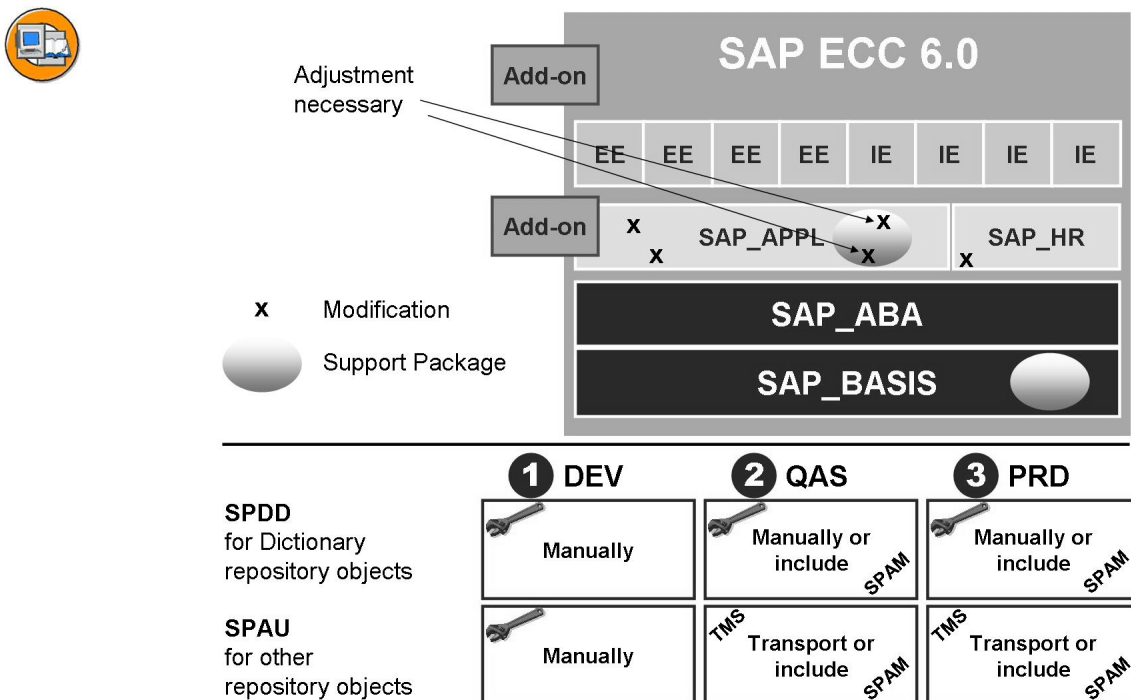


Figure 209: Modification Comparison when Importing Support Packages

If SAP objects are modified and then imported with the Support Packages, the objects have to be adjusted when they are imported. If these objects are not adjusted, the modifications that have been made to the SAP objects are reset to the SAP delivery status. You can use transaction SPDD to adjust the Dictionary objects and transaction SPAU to adjust the non-Dictionary repository objects.

You perform the modification adjustment for Dictionary objects with the transaction SPDD. This modification adjustment must be carried out in full before you can continue with the import. Otherwise, the modifications to the Dictionary objects are lost. This can then lead to data loss.



Caution: The SPDD adjustment should be performed manually in each system in the landscape and not be replaced by importing a transport request. This can lead to inconsistencies and is not recommended.



Note: As of SPAM/SAINT version 7.00/0024 you can include transport requests that contain the modification adjustments from the development system into the Support Package queue for the remaining systems. This means that the modification adjustments only need to be carried out once in the development system and are then implemented automatically in the quality assurance and production systems by the modification adjustment transports. This is a similar procedure to the release upgrade.

You perform the modification adjustment for non-Dictionary repository objects with the transaction SPAU.

You can perform the SPAU adjustment in each system of a multi-system landscape manually. Or you execute it once manually in the development system and import the resulting transport request to the follow-on systems instead. To do this, however, you should compare the modification status of the individual systems in the landscape beforehand. You can check these at any time with the Modification Browser (transaction SE95).

To perform an SPDD or an SPAU modification adjustment, proceed as follows:

1. To enable developers to perform the modification adjustment, create one or more transport requests in the Transport Organizer and under the transport requests, create tasks for the developers. You are advised to create one transport request for the adjustment of Dictionary objects and one transport request for the adjustment of non-Dictionary repository objects.
2. The developers can now perform the modification adjustment for your objects. They can use transactions SPDD and SPAU to do this. After the adjustment is complete, the developers must release the tasks and transport requests.
3. If you are using a SPAM/SAINT version 7.00/0024 or above, you can flag the adjustment transport requests (select *Select for Transport* in the transactions SPDD and SPAU). This enables you to perform the modification adjustments in the development system alone. When you import the Support Packages to the other systems in the landscape, these adjustment transports can be included in the Support Package queue. This dispenses with the need for manual modification adjustments in the follow-on systems.
4. Now choose *Confirm Adjustment* and confirm the prompt.
5. To continue the import process, choose *Support Package → Import Queue*.

The Support Package Manager continues the processing and displays the status.



Hint: You will find a lot of very detailed information about the Support Package Manager in the tool itself by choosing the *Changes* information button and following the link *Support Package Manager - Overview*.

Exercise 17: Import Support Packages

Exercise Objectives

After completing this exercise, you will be able to:

- Import Support Packages with transaction SPAM

Business Example

You need to import the most recent Support Packages to update the SAP system.

Task: Import Support Packages

Import the Support Packages named by your instructor.

This exercise must be performed first by the *DEV* group and then by the *QAS* group, but not by both at the same time.

In the first step, all the available Support Packages are imported in a queue into the SAP system *DEV*. After this import is successfully completed, the Support Packages are imported into the SAP system *QAS*.

The files required for the Basis Support Packages have already been requested. The instructor will show you where to find them.

1. Check whether Support Packages have already been imported into your system. Have these been confirmed?
2. Extract the files that contain the new Support Packages at operating system level.
Remember that this step must only be performed once for each transport directory.
3. Log on to the correct client.
4. Load the Support Packages, that is, inform the SAP system about the files.
5. Check the settings for the import of the Support Packages in transaction SPAM.
6. Define the queue for importing the Support Packages in transaction SPAM.
7. Import the Support Package queue to your system. Note any possible errors.
8. Check the log for the import process for errors.
9. Confirm the imported Support Packages after successful import.

Solution 17: Import Support Packages

Task: Import Support Packages

Import the Support Packages named by your instructor.

This exercise must be performed first by the *DEV* group and then by the *QAS* group, but not by both at the same time.

In the first step, all the available Support Packages are imported in a queue into the SAP system *DEV*. After this import is successfully completed, the Support Packages are imported into the SAP system *QAS*.

The files required for the Basis Support Packages have already been requested. The instructor will show you where to find them.

1. Check whether Support Packages have already been imported into your system. Have these been confirmed?
 - a) Transaction SPAM: Select the *Imported Support Packages* radio button and choose *Display*.

Result: Support Packages have already been imported. They have also already been confirmed. You can tell this, for example, from the green traffic light on the initial screen of transaction SPAM.
2. Extract the files that contain the new Support Packages at operating system level.

Remember that this step must only be performed once for each transport directory.
 - a) Go to file system level. Copy the corresponding files to the transport directory (for example *G:\usr\sap\trans*).

At operating system level, open a *Command Prompt* in the transport directory (for example *G:\usr\sap\trans*). Extract the file you have just copied there using the command **sapcar -xfv <name of file>**. This extracts the files to the relative directory *\EPS\in* (for example *G:\usr\sap\trans\EPS\in*).
3. Log on to the correct client.
 - a) Log on to client 000. It is only possible to import Support Packages from client 000.

Continued on next page

4. Load the Support Packages, that is, inform the SAP system about the files.
 - a) Transaction SPAM: *Support Package → Load Packages → From application server*
Confirm the dialog box to upload.
5. Check the settings for the import of the Support Packages in transaction SPAM.
 - a) Transaction SPAM: *Extras → Settings*
Leave the settings at their default values.
6. Define the queue for importing the Support Packages in transaction SPAM.
 - a) Transaction SPAM: Choose the *Display/Define Queue* button. Choose the required software component and the required Support Packages. There are, of course, no adjustment transports that could be included.
You can *Confirm Queue* with Enter.
7. Import the Support Package queue to your system. Note any possible errors.
 - a) In transaction SPAM, import the queue by choosing *Support Package → Import Queue*. Retain the default values for the start conditions of the four modules and confirm this. Confirm the dialog box to import.
Follow the individual steps of the import process, as far as possible, in the status line.
If errors occur, check these by opening the error log. In this case, import the Support Package once again. The import process can be repeated.
Confirm the dialog box informing you that the import was successful.
8. Check the log for the import process for errors.
 - a) Check the import logs in transaction SPAM by choosing *Goto → Import Logs → Queue*.
No return values of 8 or higher should be displayed.
9. Confirm the imported Support Packages after successful import.
 - a) Finally, confirm the queue in transaction SPAM by choosing *Support Package → Confirm*



Lesson Summary

You should now be able to:

- Import Support Packages with transaction SPAM
- Provide a general explanation of the import process for Support Packages

Lesson: Backing Up SAP NW AS Java

Lesson Overview

You should back up a system with production data at regular intervals, so that no data loss occurs in the case of a severe system error, and you can recreate the system using restore/recovery mechanisms. This also applies for SAP NW AS Java. In addition to backing up the database, it is also important to back up the proprietary SAP directories.



Lesson Objectives

After completing this lesson, you will be able to:

- Explain which regular backups are required for SAP NW AS Java

Business Example

Your company runs several different SAP systems. To ensure that your system can be restored after serious errors – such as the unintentional deletion of tables – it is important to have a backup of the database and other directories. This also applies for an SAP with Usage Type AS Java.

Overview: Backing Up SAP Web AS Java

Backing up SAP NW AS Java and the associated database protects you against data loss and is required to restore the SAP NW AS Java after a system error.

Prerequisite for Backup

Note the following prerequisite so that you can perform a backup:

The backup tools for your database and the backup solution for your system must be installed and available.



Hint: If you have not yet decided which backup strategy meets your system requirements, read the documentation for your database.

First Backup After Installation and Upgrade

After installation and after each upgrade/update of the SAP NW AS Java, you should perform the following:

- A first file system backup of the SAP NW AS Java (default path `/usr/sap/<SID>/`)
- A first file system backup of the home directory of the database (Microsoft Windows default path `SAPDB\MaxDB: <drive>:\sapdb`, Oracle: `<drive>:\orant`)
- Backing up the JDK directory

Backup Routine

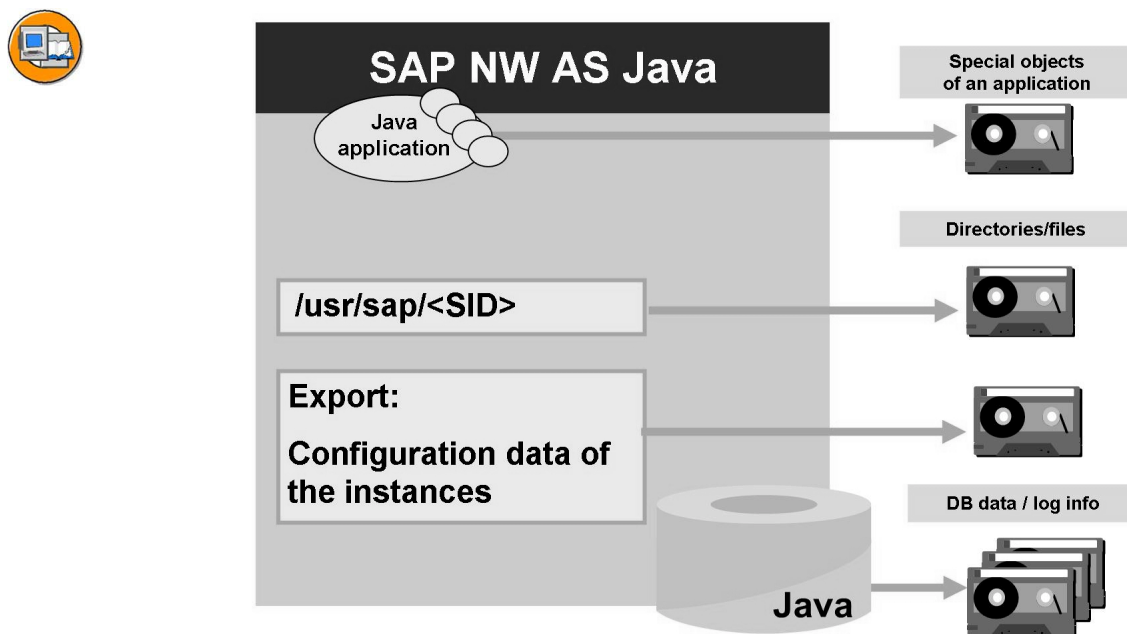


Figure 210: Backing Up SAP NW AS Java

A complete backup of all changes to SAP NW AS Java since the installation consists of:

- Backing Up the Databases
- Backing up the file system: Global directory `\usr\sap\<SID>`
To ensure that no changes are made to the file system during the backup, the SDM should be stopped
- Backing up the instance configuration (export by means of Config Tool)

Backing up the Database:

We recommend that you include both the backing up of the database and the database change logs into your daily routine.

- Online backup:

If it is possible with your application, back up the database once a day with online backup. You should, of course, back up the log files that accumulate during production operation several times a day. Once a week, you should also perform an offline backup.

- Offline backup:

If your installed application can only be consistently backed up in offline mode, we recommend that you schedule an offline backup as often as possible (at least once at the weekend). You should, of course, back up the log files that accumulate during production operation several times a day.

Backing Up the SDM:

You should perform a file system backup of the Software Deployment Manager (SDM) after a software deployment and after the implementation of patches. When you perform a normal backup of the directory `\usr\sap\<SID>`, the SDM directory is also backed up.



Hint: If you use your SAP NW AS Java mainly for software development/adjustment, include the SDM backup in your daily routine.

Backing Up the Installed Applications

Note the guidelines for each SAP application running on your SAP NW AS Java and perform any additional backup operations described there.



Lesson Summary

You should now be able to:

- Explain which regular backups are required for SAP NW AS Java



Unit Summary

You should now be able to:

- Install Support Packages for SAP NetWeaver Application Server Java-based systems
- Discuss what a Support Package Stack is
- Describe the steps to apply kernel patches
- Describe the steps to apply Java support packages
- Describe the steps to apply ABAP support packages
- List other tools involved in the software lifecycle management environment
- Describe the concept of SAP Notes and Support Packages.
- Explain the concept of the Support Package Stack and the Maintenance Optimizer.
- Explain the use of the Support Package Manager and import a SPAM/SAINT update.
- Import Support Packages with transaction SPAM
- Provide a general explanation of the import process for Support Packages
- Explain which regular backups are required for SAP NW AS Java



Test Your Knowledge

1. With which program do you install a Support Package for SAP NW Application Server Java?

2. What are the steps to apply a kernel patch?

3. Only the BASIS and ABA Support Packages are applied to the SAP ERP Central Component system.

Determine whether this statement is true or false.

- ☐ True
☐ False

4. What tools are used in AS Java software lifecycle management?

Choose the correct answer(s).

- ☐ A SAPup
☐ B SAPJload
☐ C SDM
☐ D SAPJup

5. For what are Support Packages used?

Choose the correct answer(s).

- ☐ A To enter user data.
- ☐ B To import SAP objects to keep the system at the current maintenance level.
- ☐ C To implement adjustments in the system due to changes in legal requirements.
- ☐ D To transport programs developed by the customer.
- ☐ E To import all the transport requests that SAP makes available on the SAP Service Marketplace.

6. You always have to import all available SPAM/SAINT updates in order, since they build on one another.

Determine whether this statement is true or false.

- ☐ True
- ☐ False

7. The queue for importing the SPAM update must be confirmed manually.

Determine whether this statement is true or false.

- ☐ True
- ☐ False

8. A prerequisite for importing a SPAM/SAINT update is that there are no aborted Support Packages in the system.

Determine whether this statement is true or false.

- ☐ True
- ☐ False

9. Support Packages can be imported in any order.

Determine whether this statement is true or false.

- ☐ True
- ☐ False

10. To be able to restore the SAP NW AS Java if a system error occurs, it is sufficient to backup the directory `/usr/sap`.

Determine whether this statement is true or false.

- ☐ True
- ☐ False



Answers

1. With which program do you install a Support Package for SAP NW Application Server Java?

Answer: With the JSPM program.

2. What are the steps to apply a kernel patch?

Answer:

1. Decompress kernel patch files to a temporary folder.
2. Follow SAP note 19466.
3. Save the old kernel and replace parts of the old kernel with the new files.

3. Only the BASIS and ABA Support Packages are applied to the SAP ERP Central Component system.

Answer: False

There are several other Support Package types.

4. What tools are used in AS Java software lifecycle management?

Answer: C, D

SDM, SAPJup, JLoad, JSPAM, ... are tools used for AS Java software lifecycle management.

5. For what are Support Packages used?

Answer: B, C

Support Packages are not used to enter user data. Customer developments are transported to other systems using transport requests. Transport requests from SAP are imported with the Transport Management System (TMS).

6. You always have to import all available SPAM/SAINT updates in order, since they build on one another.

Answer: False

All repository objects that belong to the tools are always upgraded during the SPAM/SAINT update. It is therefore not necessary to follow any particular order.

7. The queue for importing the SPAM update must be confirmed manually.

Answer: False

It is neither necessary to define a special queue, nor to confirm this non-existent queue.

8. A prerequisite for importing a SPAM/SAINT update is that there are no aborted Support Packages in the system.

Answer: True

This is true, there must be no aborted Support Packages in the system.

9. Support Packages can be imported in any order.

Answer: False

Support Packages must be imported in ascending order, without any gaps.

10. To be able to restore the SAP NW AS Java if a system error occurs, it is sufficient to backup the directory `/usr/sap`.

Answer: False

In addition to the proprietary SAP directories, you must also back up the database and the SDM directory.

Unit 9

Access to Help

Unit Overview

In this unit, you will learn about the online documentation and the SAP Service Marketplace. Both addresses are central starting points for obtaining information about SAP.



Unit Objectives

After completing this unit, you will be able to:

- Set up access to the online documentation
- Use the information provided by the SAP Service Marketplace

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Lesson: Configuring the Online Documentation

Lesson Overview

This lesson covers the setting up of the online documentation. In addition to the work in the system, activities must also be performed on the front end computer. The SAP Service Marketplace will also be introduced.



Lesson Objectives

After completing this lesson, you will be able to:

- Set up access to the online documentation
- Use the information provided by the SAP Service Marketplace

Business Example

The administrator has to make the online help available for all users of the system.

Access to the Documentation with the SAP Library

The SAP Library, which is also known as the online documentation, is an important source of information, and contains information about all relevant topics in the SAP environment. Installing the online documentation locally or company-wide helps users to work more effectively with the SAP system.



SAP Library BI Content Glossary Help on Help Feedback Discussion Search: Please select: SAP NetWeaver

Expand All Close All
Back Forward Synchronize

SAP Library

- Getting Started – Using SAP Software
- SAP NetWeaver Library
- Copyright
- SAP - Important Disclaimers and Legal Information

SAP Library

SAP NetWeaver® 7.0 Support Package Stack 14 including BI Content Add-On 3 SP 08, December 2007
©Copyright 2007 SAP AG. All rights reserved.

SAP Library for SAP NetWeaver has the following structure:

Substructure of the Documentation	Explanations
Getting Started – Using SAP Software	Getting started with SAP software: <ul style="list-style-type: none"> Logon Navigation Personalization Information about accessibility Working with important tools and functions Information about different types of help in SAP systems
What's New in SAP NetWeaver 7.0 – Release Notes	Overview of the most important new features in SAP NetWeaver 7.0.
IT Scenarios at a Glance	Introduction to the IT scenarios and scenario variants Overview of IT processes and process steps
Power User's Guide	Information about tools for special business tasks
Technology Consultant's Guide	Overview of information about implementing SAP NetWeaver: <ul style="list-style-type: none"> Planning the system landscape Installing or upgrading the systems Configuration of the IT scenarios
Administrator's Guide – Technical Operations Manual	Overview of tools for system administration
Administrator's Guide – Security Guide	Overview of security aspects in system administration
Developer's Guide	Information about tools, functions, and processes for the development of applications based on SAP NetWeaver
SAP NetWeaver by Key Capability	Reference documentation for SAP NetWeaver tools and functions

Figure 211: Access to Documentation with the SAP Library

By choosing SAP Library in the *Help* menu, you can display the online documentation. The terms SAP Library and online documentation are often used synonymously. The SAP Library of an SAP system always contains the complete online documentation for the system. For SAP NetWeaver, for example, the SAP Library currently offers access to more than 10,000 documents.

Using the SAP Library, you can easily search the online documentation, access a glossary, and call an introduction to using SAP systems (“Getting Started”).

The online documentation is provided in various languages and, if the calling of help has been correctly configured (as explained in the following pages), is called up in the user's logon language.

The Supported Help Types

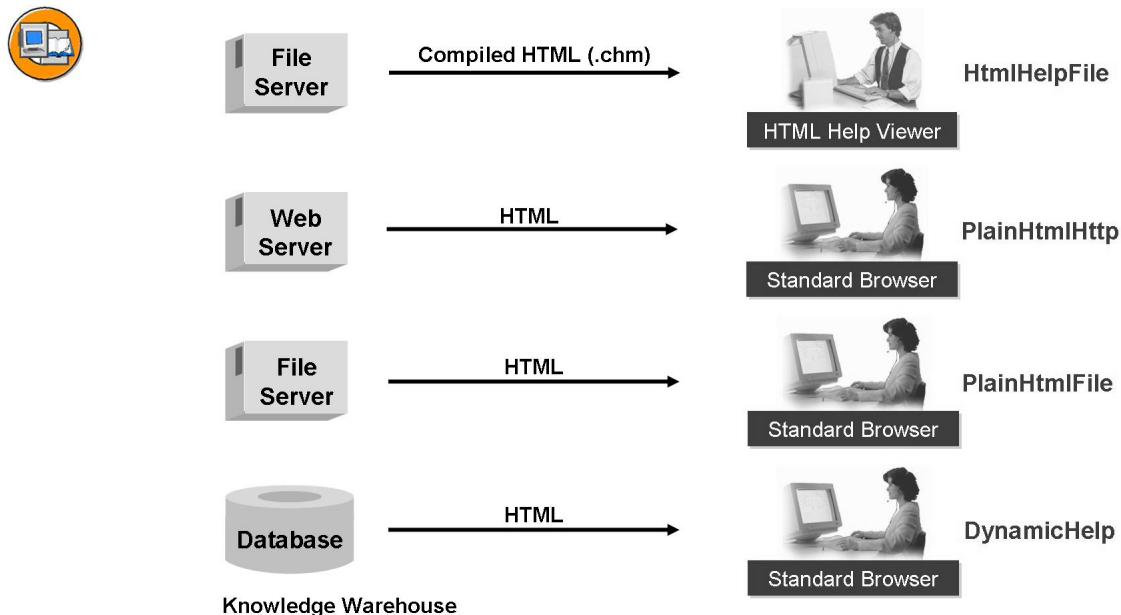


Figure 212: The Supported Help Types

HtmlHelpFile

With this help type, the documents are stored in Compiled HTML format (*.CHM). The files are made available using a file server and are displayed with the HTML Help Viewer. Compiled HTML is a format developed by Microsoft for storing HTML files in compressed format. The storage space requirement for CHM files is around a tenth of the requirement for uncompressed HTML files and is comparable to the requirement for WinHelp files. Microsoft introduced the HTML Help Viewer as a successor to WinHelp. It is based on Microsoft Internet Explorer. This type of help can only be used on Microsoft Windows 32 bit front end platforms. This type of help provides a full text search for all documents (global search) or in the documents of the current help file (local search). It is possible to print multiple documents concurrently.

PlainHtmlHttp

With this help type, the documents are stored in the standard HTML format. The documents are made available using a Web server and are displayed with a standard Web Browser. This help type can be used on all front end platforms and the documentation is displayed using a standard Web browser (Microsoft Internet Explorer or Netscape). This help provides a full text search in all documents (global search) and allows you to print individual help documents.

PlainHtmlFile

This (most simple) help type also stores the documents in standard HTML format. The documents are made available using a file server and are displayed with a standard Web browser. This help variant can be used on all front end platforms and allows you to print individual help documents.

DynamicHelp

DynamicHelp can be used on all front end platforms. It uses the standard HTML format for its files; the file access takes place using the Knowledge Warehouse server. The documents are displayed in a standard Web browser. For more information, see the online documentation for the Knowledge Warehouse.

Criteria for Selecting the Help Type

The decision on which help type to install in a particular SAP system depends mainly on the operating system of the front end client.

- If you only use front ends with Microsoft Windows, we recommend you install the help type HtmlHelpFile. This help type offers a broader range of search and print functions than the other two help types. You can of course install each of the other help types. If you deploy various front end platforms at the same time and therefore have to choose a different help type to HtmlHelpFile, you can still use the HtmlHelpFile help type with the clients under Microsoft Windows (see section: Local Override of the Help Settings on the Front End).
- If you use different front end platforms to Microsoft Windows, you should install PlainHtmlHttp since this help type offers a full text search through the SAP Help Portal.
- If you have no Web server and deploy different front end platforms to Microsoft Windows 32-Bit, you have to use the help type PlainHtmlFile.
- If you want to call the SAP documentation from the SAP GUI for Windows (Win GUI), the SAP GUI for HTML (Web GUI), or a browser-based SAP application, you cannot use the help type HtmlHelpFile to do so.



Hint: You can display the HTML-based help with a Web browser on all front end platforms supported by SAP. There are certain prerequisites or restrictions, depending on the respective platform, however. You will find further information in the installation guide for the help and in the SAP Notes 585378 – Application help with Java GUI on Unix (MF) and 576394 – Calling SAP documentation on a MAC OS X.

Setup Work in the SAP System: SR13

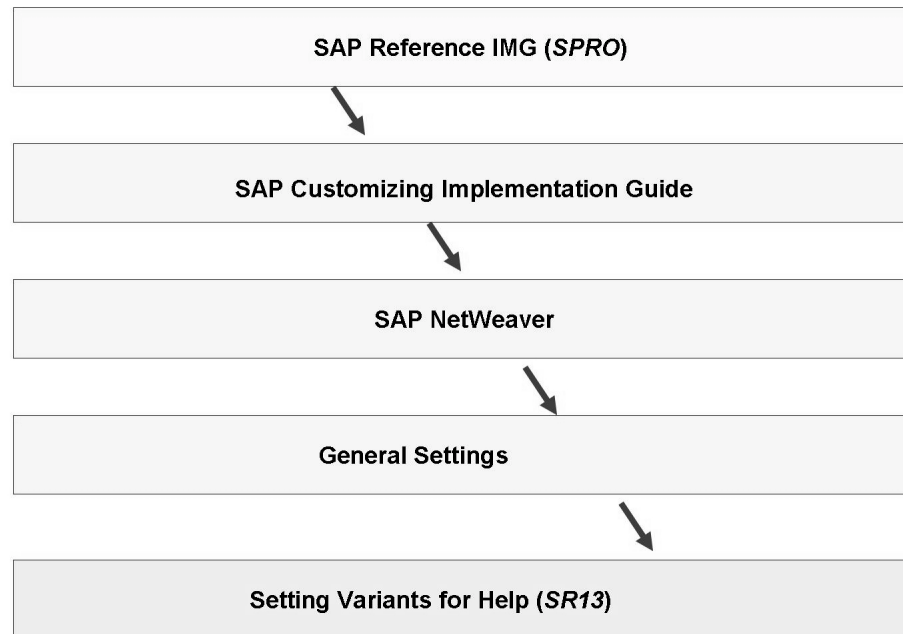


Figure 213: Setting Up the Documentation in the SAP System

With the IMG activity *SAP Customizing Implementation Guide* → *SAP NetWeaver* → *General Settings* → *Setting Variants for Help (SAP Library)*, you define which **variant(s)** of the online help are available to the users of the SAP system.



Caution: Without a corresponding configuration in transaction SR13, it is not possible to call help successfully. This is true even if there is a correctly maintained local *sapdoccd.ini* file. In this case, the system displays the message **No documentation available**.

As of SAP R/3 4.6C, you no longer need to maintain profile parameters for the online help. During an upgrade from SAP Basis 4.x to SAP Web Application Server 6.20 or higher, the values stored in the *eu/iwb/...* profile parameters for help type, storage location, and language version of the help files are read and copied as a settings variant by an XPRA program. Since these automatically created settings variants (*GENERATED_BY_XPRA ...*) cannot be changed, you must create new settings variants that copy the specifications for the storage location of the help files from the automatically created entries, as long as they are still valid, and then delete the automatically generated settings variants. Use descriptive names when creating new settings variants.

SR13, an example for the help type HtmlHelpFile:

- *Variant:*
Documentation or a different descriptive text
- *Platform:*
WN32; This setting is also appropriate for Microsoft Windows NT front ends, for example (See SAP Note 333584)
- *Area*
Documentation (is automatically replaced by *iwbhelp*)
- *Path*
For example: `\\twdf9999\Doku\700\helpdata` (without language selection)
- *Language*
E English, selected using the F4 help (this is automatically replaced with *EN*).
- *Default*
Setting this indicator in this example means that the help type HtmlHelpFile is the default help in the area Documentation for WN32 front ends.

The above example specifies that on Microsoft Windows-based front ends, the “documentation” help variant with its settings determines the help that is usually called. In this case, this means that the online documentation is called from a network drive `\\twdf9999\Doku\700\helpdata\EN`. Note that the language ID was automatically added to the path.

For front ends of other types (for example, non-Windows based), another help type can be called by default. For these other front ends, you must also set a separate settings variant as the default.

By maintaining and providing multiple settings variants, you can make the online help available in various ways. A settings variant specifies a configuration of **help type**, **storage location** of the help files (server and/or path) and the **language version** of the **help files** for a particular front end platform. If you provide multiple setting variants for a front end platform, the users can choose between these variants from the menu *Help* → *Settings* (*Extended Help* tab page).

In every settings variant, you must specify the Area where it applies, in addition to the front end platform. The area indicates the application area of the SAP Knowledge Warehouse from which the contents to be displayed are taken. The area **IWBHELP**

(documentation) contains the online documentation delivered to all customers. Customers that use the SAP Knowledge Warehouse can also define settings variants for the area IWBTRAIN (training).

A default setting for the selection of online documentation must be made in the system for every utilized front end platform. If multiple help types are installed, the end user can choose between these variants from the menu *Help* → *Settings* (*Extended Help* tab page).

Local Override of Help Settings on the Front End

If you need to make special settings for the online documentation on certain front ends, the online documentation call can be controlled on Microsoft Windows front ends with entries in the file *sapdoccd.ini* (possible storage locations for this file are shown in the following graphic).



Local override of the system-wide help settings at the frontend

Possible storage locations for the *sapdoccd.ini* file at the front end and their evaluation sequence:

1. Windows directory
2. Local or central SAPgui directory
3. \SAPgui - superordinate directory

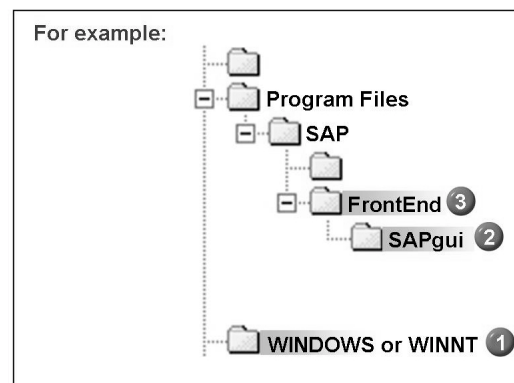


Figure 214: The *sapdoccd.ini* File

One reason for using this option would be a slow WAN connection between the front end and the storage location defined in the system for the online documentation. To avoid increased network load in this case, documentation that is available over a local network from the front end should be accessed. This locally available online documentation can be accessed using the information in the *sapdoccd.ini* file,

dependent on the front end. If this file exists with valid settings, these override the system settings for the relevant front end. Possible entries in the *sapdoccd.ini* file are shown in the following graphic.



Hint: Entries in the *sapdoccd.ini* file are only evaluated if settings for access to the online documentation exist in the system (transaction SR13). Otherwise, the system displays the message “No documentation available”.



The contents of *sapdoccd.ini* ...

[HTMLHELP] HelpType=PlainHtmlHttp PlainHtmlHttpServer=p99999.sap-ag.de:1080 PlainHtmlHttpPath-DE=saphelp/helpdata/DE PlainHtmlHttpPath=saphelp/helpdata/EN	... valid for all systems, all releases, unless...
[HTMLHELP - <Release>] HelpType=HtmlHelpFile HtmlHelpFilePath-DE=\\DOKU\700\htmlhelp\helpdata\DE HtmlHelpFilePath-EN=\\DOKU\700\htmlhelp\helpdata\EN HtmlHelpFilePath=\\DOKU\700\htmlhelp\helpdata\EN	... an individual release...
[SystemId - <SAP System>] HelpType=HtmlHelpFile HtmlHelpFilePath-DE=\\p12345\htmlhelp\helpdata\DE HtmlHelpFilePath=\\p12345\htmlhelp\helpdata\EN	... or a selected system is explicitly assigned a different help type.

For example: <Release> = 700, <SAP System> = DEV

Figure 215: Contents of *sapdoccd.ini*



Note: For detailed information about the content and structure of *sapdoccd.ini*, see SAP Note 94849: *SAPDOCCD.INI - Description*.

Explanation of the parameters and possible values:

- **HelpType:** PlainHtmlHttp, PlainHtmlFile, HtmlHelpFile, DynamicHelp, GetFromR3
- **<HelpType>Server:** Name of the Web server where the files for <HelpType> are stored
- **<HelpType>Path-<Language>:** Path where the help for the logon language <Language> is stored: <Language> should be replaced with a two-character language ID.
- **<HelpType>Path:** Path where the help that is to be displayed if the parameter <HelpType>Path-<Language> is not defined for the current logon language is stored.
 - The help type *GetFromR3* does not represent a separate help type; it is used to copy the current valid settings variant of the SAP system. If *GetFromR3* is specified as the help type (HelpType=GetFromR3), the settings are copied from the SAP system. If the server and/or path to the corresponding help type are also specified in the file *sapdoccd.ini*, these settings override the settings from the SAP system.



Caution: Since the online documentation can also be regularly updated as of SAP Web AS 6.20, there can, for example, be **multiple** versions of the SAP Web AS 6.20 documentation. SAP Note 684431: *Setting 'OTHER_RELEASE' in table IWBSETTING* describes how you should proceed in this case.



Caution: Patches are available on the SAP Service Marketplace for SAP NetWeaver 7.00 (SAP Library Patch): *service.sap.com/instguides* → *SAP NetWeaver* → *SAP NetWeaver 7.0 (2004s)* → *Maintenance*. Each of the Library Patches are contained in a folder with the name SPS<no.>. Note the information about installing the SAP Library Patches in the file: “SAP Library Patch SP Stack<no.> – Installation Instructions”.

SAP Help Portal

The SAP Help Portal provides Internet-based access to the available online documentation for SAP software solutions. The Help Portal can be accessed from every Web-capable front end without logon. The documentation provided can be accessed very efficiently using a full text search.



Figure 216: The SAP Help Portal

SAP Service Marketplace

The SAP homepage <http://www.sap.com> provides information about all SAP Solutions and about SAP as a company. This information is public and can be accessed by anyone.

In addition to this, SAP provides various services, detailed information, and other offers for customers and partners on the SAP Service Marketplace at <http://service.sap.com>. Access to the SAP Service Marketplace (SMP) is free of charge; however, it is protected by a user name and password logon. There is at least one person with access to the SMP at every customer. This person can create additional users and assign certain authorizations to those users.

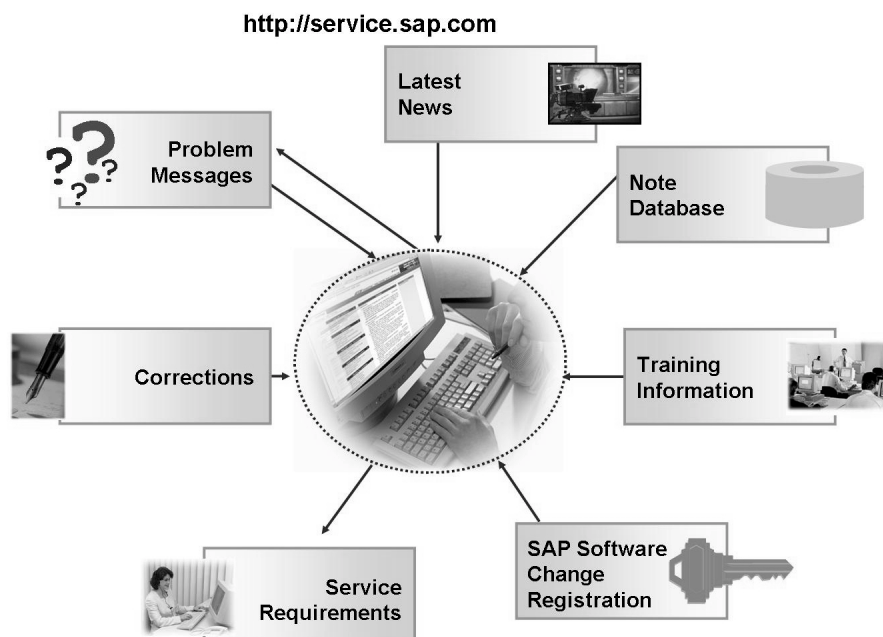


Figure 217: The SAP Service Marketplace

There are two simple options available to simplify navigation:

- Personalization of the initial screen
- Navigation using Quick Links, such as <http://service.sap.com/smp>. Quick Links are simply added to the basic address after a “/”. In this case: “smp”.

Important Quick Links:

- **/user-admin**: user administration on the SMP (for “your” users)
- **/sscr**: You can obtain SAP Software Change Registration keys here
- **/notes**: The online access to SAP Notes is available using this Quick Link
- **/swdc**: You can obtain patches, updates, and other software for your SAP systems here
- **/message**: This Quick Link allows you to create a message to SAP
- **/servicecat**: The service catalog displays a list of the services offered by SAP
- **/instguides**: You can find installation guides for the various SAP solutions here
- **/netweaver**: This Quick Link leads to the newest information about SAP NetWeaver™
- **/education**: You can find information about the SAP training courses available worldwide in an online catalog here

Additional Information

- SAP Library
- <http://help.sap.com>
- <http://service.sap.com>
- SAP Notes
 - SAP Note 94849 - *SAPDOCCD.INI* - *description*
 - SAP Note 95309 - *SAPDOCCD.LOG* - *description*
 - SAP Note 101481 - *Collective note: Application help and R/3 library*
 - SAP Note 302459 - *Setting variants for online help (SAP Library)*
 - SAP Note 333584 - *Frequent errors in settings of the SAP Library*

Exercise 18: Access to Help

Exercise Objectives

After completing this exercise, you will be able to:

- Install the online documentation

Business Example

The administrator has to make the online help available for all users of the system.

Task 1: Test the Online Documentation (optional)

Unsuccessful call of the online documentation

1. Start the call for the online documentation. This should fail.

Task 2: Set Up the Online Documentation

Make settings in transaction SR13.

1. In your system, call the cross-client maintenance of the online documentation access. Maintain the settings for the help type HtmlHelpFile in accordance with the example values in the training material (Note: SR13: An Example).

Note that you cannot specify a correct path to the online documentation files. The online documentation is not accessible for the servers in the training environment for administrative training courses. Therefore, the settings in the `sapdoccd.ini` file on your front end take precedence, once you have made settings in SR13.

Task 3: Call the Online Documentation

Perform a successful call of the online documentation.

1. Start the call for the online documentation. Although the settings in transaction SR13 do not point to available online documentation, this call should still be successful because there is a local `sapdoccd.ini` file on your front end. This points to help that is available to your front end. If there is no SAP Web AS 6.20 online documentation available in the training center that you are attending, you can use the Internet-based help for the rest of this training course, under <http://help.sap.com>.

Continued on next page

Task 4: Use the SAP Service Marketplace

1. Call the URL for the SAP Service Marketplace: <http://service.sap.com>.
2. Use your own S user (as an SAP customer, you have a user of this type) to log on to the SAP Service Marketplace.

Solution 18: Access to Help

Task 1: Test the Online Documentation (optional)

Unsuccessful call of the online documentation

1. Start the call for the online documentation. This should fail.
 - a) Choose *Help* → *SAP Library*. The system displays the message “No documentation available”.

Task 2: Set Up the Online Documentation

Make settings in transaction SR13.

1. In your system, call the cross-client maintenance of the online documentation access. Maintain the settings for the help type *HtmlHelpFile* in accordance with the example values in the training material (Note: SR13: An Example).

Note that you cannot specify a correct path to the online documentation files. The online documentation is not accessible for the servers in the training environment for administrative training courses. Therefore, the settings in the *sapdoccd.ini* file on your front end take precedence, once you have made settings in SR13.

- a) Start transaction SR13 or follow the path listed in the course manual. Then enter the example settings from the training material (“Note: SR13: An Example”) on the *HtmlHelpFile* tab page. Choose *New Entries* to make the fields ready for input, make all of your entries, and then choose *Save*.

Task 3: Call the Online Documentation

Perform a successful call of the online documentation.

1. Start the call for the online documentation. Although the settings in transaction SR13 do not point to available online documentation, this call should still be successful because there is a local *sapdoccd.ini* file on your front end. This points to help that is available to your front end. If there is no SAP Web AS 6.20 online documentation available in the training center that you are attending, you can use the Internet-based help for the rest of this training course, under <http://help.sap.com>.
 - a) Follow the exercise instructions.

Continued on next page

Task 4: Use the SAP Service Marketplace

1. Call the URL for the SAP Service Marketplace: <http://service.sap.com>.
 - a) Start the browser on your front end and use the specified address. Confirm any dialog boxes that appear.
2. Use your own S user (as an SAP customer, you have a user of this type) to log on to the SAP Service Marketplace.
 - a) Choose the *Login Now* button on the initial screen of the SAP Service Marketplace to display the user name and password query.
Explore the SAP Service Marketplace.



Lesson Summary

You should now be able to:

- Set up access to the online documentation
- Use the information provided by the SAP Service Marketplace



Unit Summary

You should now be able to:

- Set up access to the online documentation
- Use the information provided by the SAP Service Marketplace



Test Your Knowledge

1. The SAP Library provides you with information about how to partition your hard disks.
Determine whether this statement is true or false.
 - ☐ True
 - ☐ False
2. The SAP Library also offers a glossary of important terms.
Determine whether this statement is true or false.
 - ☐ True
 - ☐ False
3. The SAP Library is only available on the Internet at the URL <http://help.sap.com>.
Determine whether this statement is true or false.
 - ☐ True
 - ☐ False
4. The following technical forms of the online help, also known as the SAP Library, are available:
Choose the correct answer(s).
 - ☐ A Compressed HTML (.comphtml)
 - ☐ B PlainHtmlHttp
 - ☐ C PlainHtmlFile
 - ☐ D StaticHelp
 - ☐ E DynamicHelp
 - ☐ F SAP HelpKit
5. The `sapdoccd.ini` file can be stored in three different places. In which sequence is the directory tree searched: A) *C:\Program Files\SAP\FrontEnd*, B) *C:\WINNT*, and C) *C:\Program Files\SAP\FrontEnd\SAPgui*?



Answers

1. The SAP Library provides you with information about how to partition your hard disks.

Answer: False

Partitioning hard disks is not part of the SAP Library.

2. The SAP Library also offers a glossary of important terms.

Answer: True

Yes, it does.

3. The SAP Library is only available on the Internet at the URL <http://help.sap.com>.

Answer: False

The SAP Library can and should also be set up locally, for example, on a file or Web server.

4. The following technical forms of the online help, also known as the SAP Library, are available:

Answer: B, C, E

Compressed HTML does not exist, although Compiled HTML (.chm) does. Compiled HTML is the recommended format for 32 bit Microsoft Windows front ends. The other help types are PlainHtmlHttp, PlainHtmlFile, and DynamicHelp.

5. The `sapdoccd.ini` file can be stored in three different places. In which sequence is the directory tree searched: A) *C:\Program Files\SAP\FrontEnd*, B) *C:\WINNT*, and C) *C:\Program Files\SAP\FrontEnd\SAPgui*?

Answer: The sequence is: B - C - A.

Unit 10

Printer Connection in AS ABAP

Unit Overview

In this unit, you will learn about the output processing architecture in the SAP system. You will learn how to define printers and spool servers in the system and how to manage spool and output requests.



Unit Objectives

After completing this unit, you will be able to:

- Describe the architecture and data flow of output processing in the SAP system
- Create printers and spool servers in the SAP system
- List important access methods
- Manage spool requests
- Describe the concept of logical spool servers
- Set up logical spool servers
- Manage spool and output requests

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Lesson: Configuring Printers in SAP Systems

Lesson Overview

In this lesson, you will learn about the output processing architecture. You will learn how to set up printers in the SAP system.



Lesson Objectives

After completing this lesson, you will be able to:

- Describe the architecture and data flow of output processing in the SAP system
- Create printers and spool servers in the SAP system
- List important access methods
- Manage spool requests

Business Example

The administrator sets up printers in the SAP system and monitors the output of spool requests.

Printing from SAP Systems

There are various document classes in the SAP system (such as report lists, SAPscript or SAP Smart Forms documents). Although the way in which documents are created may be completely different, the output on paper is always performed using the same mechanism in two steps: First a **spool request** is created. The spool request contains device-independent print data and includes administrative information (such as author, date, number of copies) and the actual print data. Only when the spool request is to be output on a particular device is an **output request** created. The device-independent print data from the spool request is converted to the printer language that the selected output device understands.

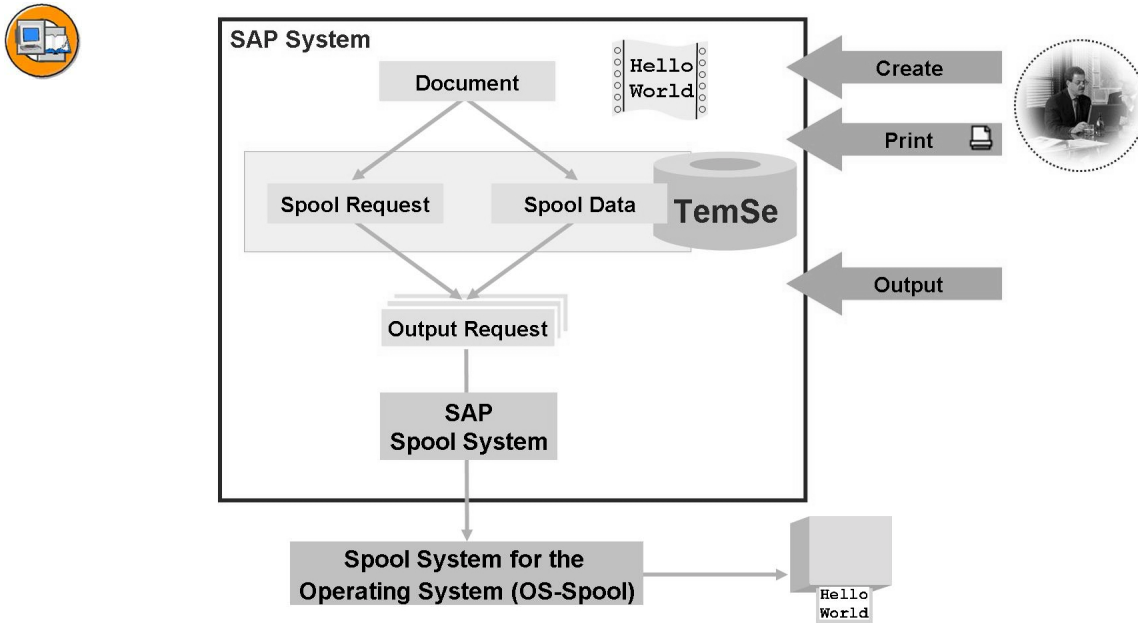


Figure 218: Data Flow During Printing

This procedure allows the user to display a spool request before output. There can also be several output requests for one spool request. This can avoid the user having to recreate (possibly with a great deal of effort) a spool request, if, for example, the toner in a printer is exhausted, or the wrong paper was in the tray. The user can of course create a spool request and an output request at the same time (immediate print) by choosing the *Print out immediately* option.

The actual document content of a spool request is stored in **TemSe** (for temporary sequential objects), for which you define the storage location with the profile parameter *rspo/store_location*.

- Value *db* (the default value): Spool requests are stored in database table *TST03* (Advantage: backup as part of the database).
- Value *G*: Stored at operating system level in the global directory (advantage: performance).

➔ **Note:** You can also specify the storage location individually for the output device in transaction SPAD (menu path *Edit* → *Data Storage*).

SAP Note 20176 contains additional possible values for *rspo/store_location*.

The creation of an output request prompts the SAP spool system to send a (usually) printer-dependent, completely formatted data stream to a printer using an operating system spooler (OS spool). This means that the addressed printer model must be known to the SAP system. Definitions of this type are described as **device types**.

If a printer cannot be controlled at operating system level, it cannot be used from the SAP system, either.

There are many ways in which a spool work process can reach an operating system spooler. The most important of these connections, described as **access methods**, are introduced in the following sections.

Local Printing

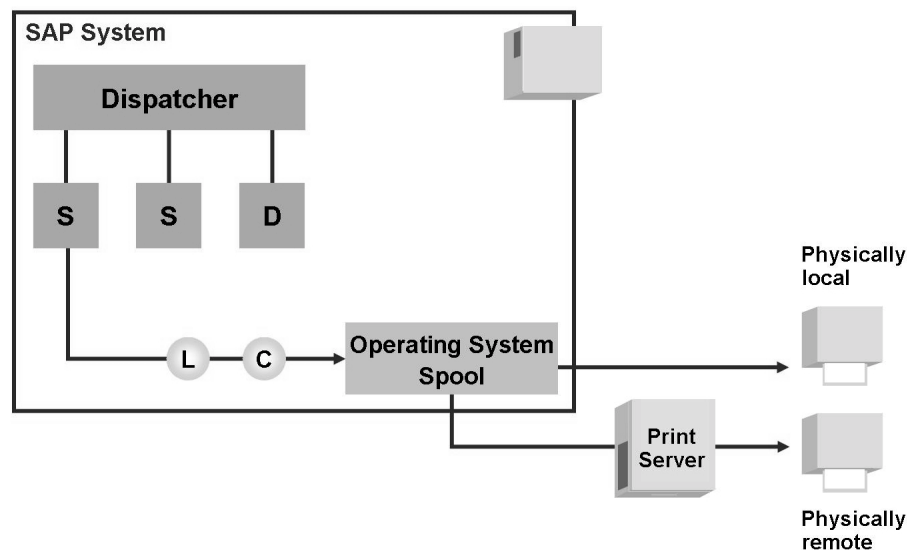


Figure 219: Local Printing

A characteristic of **local printing** is that the **spool work process and operating system spool are running on the same host**. It is irrelevant whether the printer is directly connected to this host, or is reached over a network (and possibly another print server). The spool work process passes on its data locally, that is on the same host.

- On **UNIX** systems, the print data with **access method L** is output using operating system methods (for example, with the commands *lp* or *lpr*). The specific syntax is stored in profile parameters.
- Under **Microsoft Windows**, the data with **access method C** is passed directly to the operating system print API.

Local printing is the fastest and most reliable connection from the SAP system to the operating system. As soon as the spool work process has transferred its data, it can deal with new output requests - even if the operating system spooler may still be occupied.

You can configure multiple spool work processes for an SAP instance. This has - irrespective of the access method - consequences for the **output sequence**. Different spool requests for the same printer may be printed in a different order to that in which they were created. If you require output in sequence, you can specify this for individual printers. However, a setting of this type reduces the ability to process printouts in parallel. For more information about this topic, see SAP Note 108799.

Remote Printing

With remote printing, the spool work process and operating system spooler are running on different hosts. In exactly the same way as with local printing, it is irrelevant from the SAP system's point of view whether the printer is directly connected to the remote host, or is reached using another network connection.

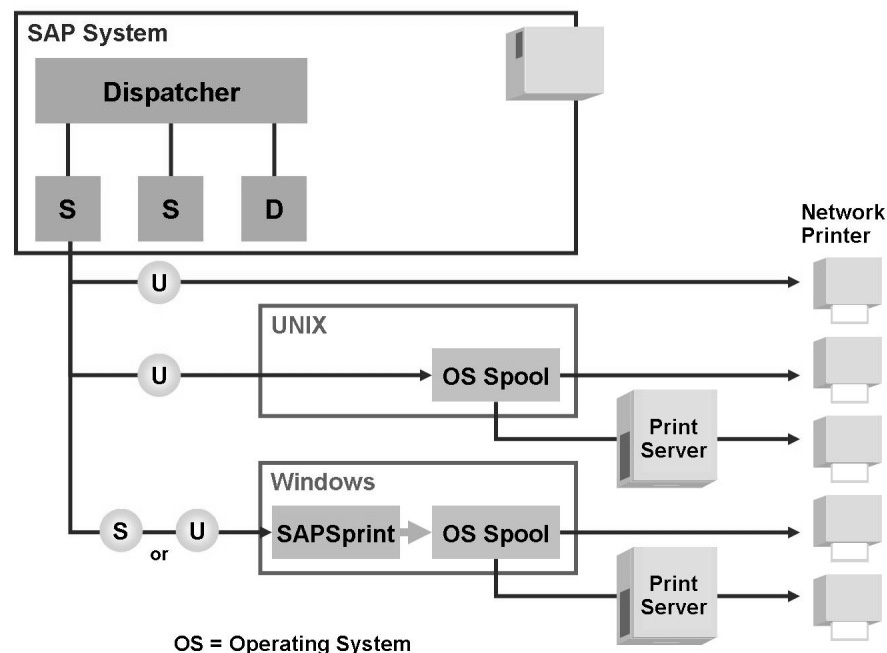


Figure 220: Remote Printing

Typical scenarios for remote printing are:

- Network printers provide their own operating system spoolers and are directly connected to a computer network. Printers of this type are directly addressed from the SAP system using their names (**access method U**).
- Access method U is also used if the remote host is a UNIX system. SAP Note 39405 describes how access method U can be used for the various UNIX versions.
- SAP provides the program *SAPsprint* for all hosts with Microsoft Windows operating systems. SAPsprint is a Windows service capable of multi-threading. Each output request is processed in a separate, isolated thread. The output requests that SAPsprint receives from the SAP system can thus be transferred to a particular printer individually. If the printer is not working, this does not disturb the printing of other output requests on the other printers.

Access method S is usually used here (SAP protocol), but **access method U** (UNIX Berkeley protocol) is also supported.

For performance reasons, you should only use remote printing in a LAN environment (not WAN) and should ensure that the operating system spoolers are available.

Front-end Printing

SAP users can output documents on their **local printers** using **front-end printing**. These local printers do not need to be individually defined in the SAP system. Rather the system administrator only needs to create a representative output device for each operating system platform.

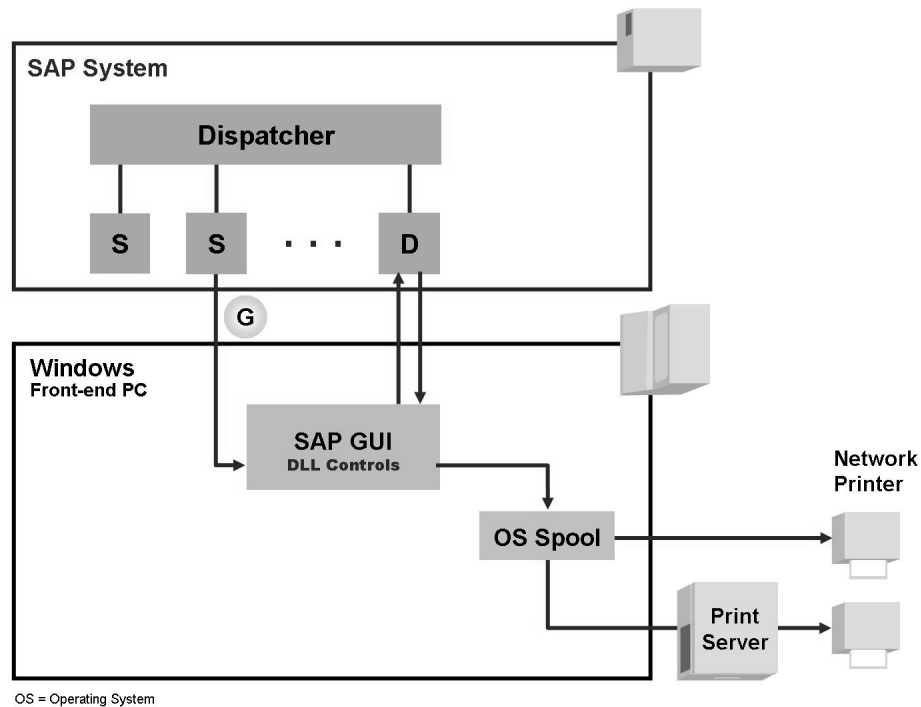


Figure 221: Front-end Printing with Control Technology (Access Method G)

As of SAP Web AS 6.20 you can use a new procedure for front-end printing - front-end printing using control technology with **access method G**. This no longer requires an SAPlpd. Furthermore, the printer selection is not displayed in the SAP system. A Windows printer selection window is called directly from the control instead. Technically speaking, the new front-end printing is based on the control that has been used in the SAP GUI for a long time.

Controls are DLLs that run in the process context of the SAP GUI. The new print control receives the print data and transfers it to the printing system for the operating system. In contrast to conventional front-end printing with access method F, front-end printing with control technology and access method G that is available as of SAP Web AS 6.20 offers the advantage that front-end printing using SAP GUI for Java can also be set up independent of the platform.

Front-end printing with control technology (access method G) also enables front-end printing from the SAP GUI for Java on non-Windows-based platforms, such as UNIX. Printing using the Windows Terminal Server is also made easier with front-end printing using control technology.

Useful information about front-end printing with control technology is available in SAP Note 821519.

The processing of front-end printing is also performed, as with the other output methods, using a spool work process. There can, therefore, be conflicts between regular and front-end print requests. You specify the maximum number of spool work processes that can be used for front-end printing for each SAP instance using the profile parameter *rdisp/wp_no_Fro_max* (the default value is 1).

Front-end printing is suitable for output on local printers; however, it is not for production or mass printing.

Of course, front-end printing requires a connection to the front-end PC. However, this method cannot be used for background processing.

When using access method F (for releases up to and including 4.6C), the print data stream is transferred to the host on which the SAP GUI of the user is running. This method can be used for front-end PCs with different operating systems:

- In the case of Microsoft Windows operating systems, the saplpd transfer program receives the data stream and forwards it to the default printer of the Microsoft Windows output control (or a different printer, if this is configured). If necessary, saplpd is started automatically.
- With other operating systems (UNIX, Apple Macintosh, and so on), the data is transferred directly to the operating system spooler. In this case, the printer name (identical for all users) must be specified in the device definition.

For more information, see SAP Composite Note 128105. SAP Notes 351230 (before SAP Web AS 6.40) and 771683 (as of SAP Web AS 6.40) describe front-end printing with the (standalone) SAP ITS, or with the integrated ITS when using the SAP GUI for HTML. SAP Note 150533 contains information about front-end printing when using Windows Terminal Server.

If you use SAP GUI for HTML and print on your front end, you need access method F. Using this print method, the print data should be sent to the browser and displayed. You can then print the document on your front end.

Creating Output Devices

The configuration of the spool system is a system administration task. The central tool for this is transaction SPAD (menu path *Tools* → *CCMS* → *Print* → *Spool Administration*).

Creating Output Devices

		Local	Remote	Front End
Device Attributes	Device Type	Select the appropriate type in each case	Select the appropriate type in each case	SWIN
	Spool Server			–
Host Spool Access	Access Method	L (UNIX) C (Windows)	S or U	G
	Host Printer	OS Printer Name	OS Printer Name	__DEFAULT
	Host	fix	–	–
	Destination Host	–	Select	–

With front-end printing with control technology (access method G), the printer is given a generic name in the SAP system, and is assigned to the physical device __DEFAULT. Since the models used as front-end printers can vary considerably, the device type *SWIN* is assigned for Windows front ends. When printing with SAP GUI for Java on other operating systems, you have to use a corresponding device type, such as *PostScript*.

If front-end printing takes place using SAP GUI for HTML with access method F, the device type *PDF1* is selected. The print data is then transferred to the front-end browser as a PostScript document and can be printed locally.

Output Devices for Front-end Printing

	SAP GUI for WINDOWS	SAP GUI for Java	SAP GUI for HTML
Device Type	SWIN	Select the appropriate type in each case	PDF1
Access Method	G	G	F
Host Printer	__DEFAULT	__DEFAULT	Select the appropriate type in each case

To create an output device, call transaction SAPD and choose *Output Devices* on the *Devices / Servers* tab page. If there are a large number of devices in your system already, you can restrict the output list in the field next to the button (for example “PR*”). Important information for an output device:

Output device

Name, maximum of 30 characters long (case-sensitive).

Short name

For internal system purposes (can be automatically generated).

Device type

Printer model/family (more information about this below). The device type SWIN transfers the SAP system format to the Microsoft Windows printer driver. This is useful, for example, if various printers are used for front-end printing in a Microsoft Windows environment.

Spool server

SAP application server with spool work processes or logical server.

Location

For example, building and room number (so that users can find their output).

Message

Used to temporarily override the location (such as “Is currently in maintenance”).

Lock printer in SAP system

Output requests for printers for which this indicator is selected are created but not transferred to the printer. The user receives the message *...no immediate printing*.

Host spool access method

How does a spool work process contact the operating system spooler?

Host printer

Name of the printer at operating system level. Note that this name is case-sensitive. Under Microsoft Windows, there must not be a space in the printer name, and network printers are addressed using their UNC names (in the format `\\R12345\\P42`). The specification **__DEFAULT** calls the default Microsoft Windows printer (for example, for front-end printing in a Microsoft Windows environment).

Host name

Only for local printing, is calculated automatically from the spool server.

Destination host

Only for remote printing. Name of the host on which the operating system spooler is running.

Device Types

The SAP system uses a device type to format the output device-specific print output.



Hint: When reference is made to an output device in the SAP environment, it does not necessarily mean a printer. An output device can also be, for example, an Output Management System or an archiving system.

When the spool work process generates an output request, it uses the specifications of the device type. That is, the device type describes how print data should be formatted for a particular output device.

The following figure illustrates how a device type is created.

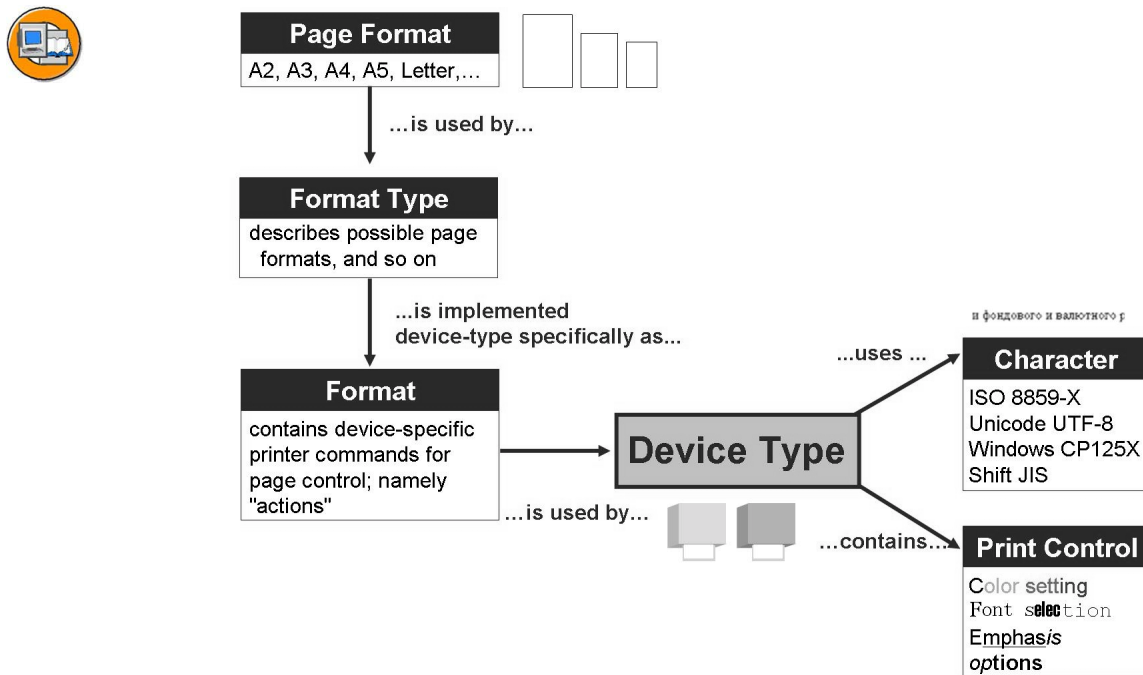


Figure 222: What Is a Device Type?

The following list explains the terms from the above figure.

Page format

A page format describes the format of a printable page in the SAP system. A large number of standard page formats are predefined in the system. If a device is to support additional format that are not delivered, you can define new formats. Consider when doing so that your output device must, of course, be able to use the new format.

Format type

A format type describes how output should appear on paper. It primarily contains the formatting of the page format.

Format

A format is a device-specific implementation of a format type. That is, the SAP system can use the description in a format to control a device correctly to, for example, perform an output on a page with the Letter format. A format type is therefore not device-specific; the format, on the other hand, is a device-specific implementation of a format type.

Character set

A character set contains the characters that can be output by a particular output device. That is, to be able to use a particular character set for a selected printer model in the SAP environment, the device type assigned to this printer model must contain this character set.

Print control

Print controls allow the control of particular display options of output devices, such as boldface, changing the font size, changing the font, and so on. Print controls use device-specific control character sequences. That is, to create a new device type, the display options offered in the SAP system must be stored with the control character sequences that the selected printer model supports. The control character sequences to be used can be found in the device vendor's documentation.

You can see that using devices for which no suitable device type exists in the SAP system may mean a significant effort.

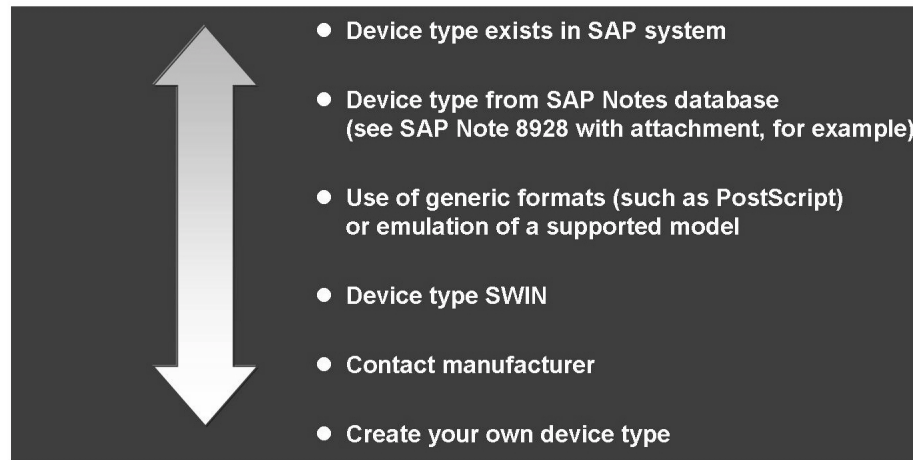


Figure 223: Selecting an Appropriate Device Type

How do you assign the correct **device type** to your printer?

- In the ideal situation, there is already a device type in your SAP system. Note that a separate device type is not required for every printer model of a vendor, but just for each model family.
- SAP Note 8928 contains a list of all printers supported by SAP. There is an attachment for this SAP Note containing corresponding device types.
- For many printers, you can use a generic format (such as PostScript) for which device types exist. It is also possible that your printer can be addressed in the same way as another model that is supported by SAP (compatibility mode).
- There are drivers for the Microsoft Windows operating systems for practically all printers on the market. You can use these printers as output devices with device type SWIN. The conversion to a print data stream is performed by the Microsoft Windows driver in this case.
- The SAP system contains all of the tools required to create your own device types or to adjust copies of existing device types. Detailed knowledge of the SAP spool system and the printer control are required to do this. You should weigh up the expense against the purchase of supported printers.

Exercise 19: Configure Printers

Exercise Objectives

After completing this exercise, you will be able to:

- Create printers and spool servers in the SAP system

Business Example

The administrator sets up printers in the SAP system.

Task 1: Check the Print Environment

First check the print environment of your system.

1. How many spool work processes are set up for the application server to which you are currently logged on?
2. How many spool work processes are configured in your entire SAP system?
3. How many spool servers are available in your SAP system?
4. Make a setting for your SAP user so that an output request is not created immediately for a spool request.
5. Which printers are defined at operating system level of your server? Where do they print to?
6. (If possible) Which printers are defined at operating system level of your front-end PC in the training room? Where do they print to?

Task 2: Create a Local Printer

1. Create a local printer **Local<##>** (<##> stands for your group number) in your SAP system that controls one of the previously determined printers.
2. Output any list (Suggestion: All profile parameters that begin with rspo) without immediate printing on the printer Local<##>.
3. Check your output.

Task 3: Create a Remote Printer (Optional)

1. Create a remote printer **Remote<##>** in the SAP system that controls a remote printer specified by the instructor.

Continued on next page

2. Output any list with immediate printing on the printer Remote<##>.
3. Check your output.

Task 4: Create a Front-End Printer (Optional)

1. Create a front-end printer **Frontend**<##> in the SAP system that calls the default printer of a Microsoft Windows front-end PC.
2. Output any list with immediate printing on the printer Frontend<##>.
3. Check your output.

Solution 19: Configure Printers

Task 1: Check the Print Environment

First check the print environment of your system.

1. How many spool work processes are set up for the application server to which you are currently logged on?
 - a) Call transaction SM50 and count the number of work processes of type *SPO*.
2. How many spool work processes are configured in your entire SAP system?
 - a) This information is provided by transaction SM66. If you do not see any work processes at first, check the status *wait* under *Select process*.



Hint: The number of spool work processes cannot be changed by operation mode switches.

3. How many spool servers are available in your SAP system?
 - a) A (real) spool server is an SAP application server with at least one spool work process. You can display this information with transaction SM51 more easily than with transaction SM66: All application servers that provide the service *Spool* are spool servers.
4. Make a setting for your SAP user so that an output request is not created immediately for a spool request.
 - a) To do this, choose *System* → *User Profile* → *Own Data* (transaction SU3) and the *Defaults* tab page there. Ensure that *Output Immediately* is **not** checked and save your changes, if necessary.
5. Which printers are defined at operating system level of your server? Where do they print to?
 - a) Call *Start* → *Settings* → *Printers* at operating system level in your server. There should be printers (such as *Printer1* for the group working on the DEV system and *Printer2* for the group working on the QAS system) that print to a file.
6. (If possible) Which printers are defined at operating system level of your front-end PC in the training room? Where do they print to?
 - a) If possible, call *Start* → *Settings* → *Printers* on your front end.

Continued on next page

Task 2: Create a Local Printer

1. Create a local printer **Local<##>** (<##> stands for your group number) in your SAP system that controls one of the previously determined printers.
 - a) In the SAP system, choose *Tools → CCMS → Print → Spool Administration* (transaction SPAD). On the *Devices/Servers* tab page, choose *Output Devices* (leave the field to the right empty). If you cannot find the button to *Create*, choose *Change* to switch to change mode. Now create the printer **Local<##>** with the following details:
 - *Device Attributes* tab page:
 - *Device Type*: Should match the previously determined printer (**HPLJ4**)
 - *Spool Server*: Any spool server from your system
 - *Location*: Any text
 - *Host Spool Access Method* tab page:
 - *Access Method*: **C** for Windows
 - *Host Printer*: Name of the previously determined printer (**Printer1** or **Printer2**)

Accept the default values for the other values and save. As you can see, the system specifies the Short Name automatically.
2. Output any list (Suggestion: All profile parameters that begin with rspo) without immediate printing on the printer Local<##>.
 - a) To create the suggested list, start transaction SA38 enter the report RSPFPAR, and execute it. Enter the parameter **rspo*** and choose *Execute* again. Alternatively, you can also print the output of transaction SM51.

To Print, choose the appropriate button. Alternatively, you can choose *System → List → Print*. Choose the output device **Local<##>** (enter it directly or select it using the F4 help). Choose *Continue* without making any additional entries.
3. Check your output.
 - a) Call transaction SP01. Choose *Execute* and take a look at the spool requests.

Continued on next page

Task 3: Create a Remote Printer (Optional)

1. Create a remote printer **Remote<##>** in the SAP system that controls a remote printer specified by the instructor.
 - a) The procedure is the same as for the previous exercise, but with different values. Your instructor will give you the exact information (host name, printer name, access method).
2. Output any list with immediate printing on the printer Remote<##>.
 - a) You can change your user defaults by choosing *System* → *User Profile* → *Own Data* (transaction SU3). Check the *Output Immediately* field on the *Defaults* tab page.
 - b) For a list, you could output the list of work processes in transaction SM50, for example.
3. Check your output.
 - a) Due to the setting made in task 2, print time *Output Immediately* is now the default value. The user can make this (and other) settings in the print dialog box by choosing *Properties*.



Hint: By choosing *Show selected print parameters on initial screen* in the *Properties* window, you can maintain some parameters directly on the print dialog box in future.

- b) Call transaction SP01. Choose *Execute* and take a look at the spool requests and the corresponding output requests.

Continued on next page

Task 4: Create a Front-End Printer (Optional)

1. Create a front-end printer **Frontend<##>** in the SAP system that calls the default printer of a Microsoft Windows front-end PC.
 - a) In the SAP system, choose *Tools* → *CCMS* → *Print* → *Spool Administration* (transaction SPAD). On the *Devices/Servers* tab page, choose *Output Devices* (leave the field to the right empty). If you cannot find the button to *Create*, choose *Change* to switch to change mode. Now create the printer **Frontend<##>** with the following details:
 - *Device Attributes* tab page:
 - *Device Type*: **SWIN**
 - *Location*: **here**
 - *Host Spool Access Method* tab page:
 - *Access Method*: **G**
 - *Host Printer*: **__DEFAULT**

Accept the default values for the other values and save. As you can see, the system specifies the Short Name automatically.
2. Output any list with immediate printing on the printer Frontend<##>.
 - a) The procedure is the same as for the previous task.
3. Check your output.
 - a) The procedure is the same as for the previous task.



Lesson Summary

You should now be able to:

- Describe the architecture and data flow of output processing in the SAP system
- Create printers and spool servers in the SAP system
- List important access methods
- Manage spool requests

Related Information

- SAP NetWeaver Library: *Administrator's Guide* → *Technical Operations Manual for SAP NetWeaver* → *Administration of SAP NetWeaver Systems* → *Application Server ABAP (AS ABAP)* → *Management* → *Printing*
- SAP Service Marketplace, Quick Link /output
- SAP Notes
 - SAP Note 118057 - *Flexible Configuration of the Spool Service*
 - SAP Note 108799 - *How many spool work processes for each instance?*
 - SAP Note 128105 - *Frontend printing (collective note)*
 - SAP Note 8928 - *List of supported printers/device types*
 - SAP Note 351230 - *Frontend printing with HTML GUI/WebGUI*
 - SAP Note 771683 - *New front-end printing for SAP GUI for HTML*
 - SAP Note 19706: *Tuning the spooler*
 - SAP Note 16307 - *Processing times when printing*
 - SAP Note 894444 - *Tool for server-based printing on Windows (SAPSprint)*
 - SAP Note 821519 - *Front-end printing with control technology*
 - SAP Note 150533 - *Printing in Windows Terminal Server (WTS)*

Lesson: Concept of Logical Spool Servers

Lesson Overview

In this lesson, you will learn about the concept of logical spool servers and how to set them up.



Lesson Objectives

After completing this lesson, you will be able to:

- Describe the concept of logical spool servers
- Set up logical spool servers

Business Example

Concept of Logical Spool Servers

The printing concept introduced up to now envisages a fixed assignment of an output device to a spool server. A spool server, on the other hand, can be assigned multiple output devices, which raises the risk of this server becoming overloaded. It would therefore be desirable to have a mechanisms for load balancing across multiple servers. Groups of spool servers are also advisable with regard to downtime security. Both aspects are taken into account by introducing logical spool servers.

Include logical spool servers in the planning of your printer landscape from the outset. When scaling your SAP system later (additional instances with spool work processes), logical spool servers make it easier to adapt the printer landscape.

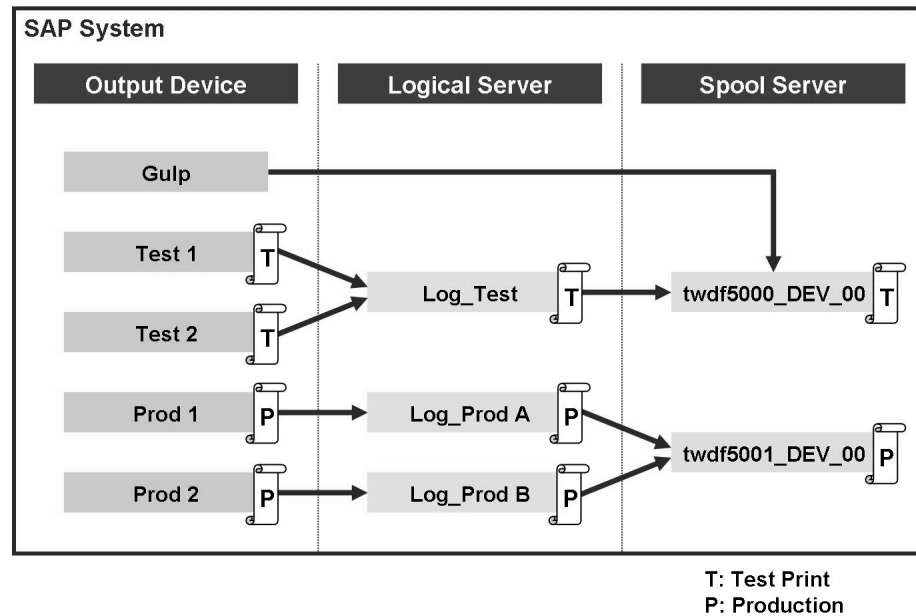


Figure 224: Spool Servers

A **spool server** is an SAP application server with at least one spool work process. Every output request is processed on a “real” spool server of this type.

An output device created in the SAP system can be assigned a spool server directly. However, there are many advantages associated with an additional logical layer between the output device and the spool server. You can use **logical (spool) servers** for this purpose. These stand for a hierarchy of other logical servers and/or “real” spool servers.

You can classify output devices and spool servers, for example, for test printing or production printing.

The SAP system checks the classifications when saving, and displays a warning message if there are deviations. For example, the system warns you if you attempt to assign a high volume printer to a production print server.

Creating a Logical Spool Server

You can maintain the spool server in transaction SPAD by choosing *Spool Servers* on the *Devices / Servers* tab page. Important information for a spool server:

Server Name

Name of the spool server, maximum of 20 characters long (case-sensitive). The field below is intended for a short description.

Server Class

Classify the spool server here (for example, for mass printing).

Logical Server

Select this field when you create a logical server.

Mapping

Name of a real or logical server to which this logical server refers.

Additional information is presented below.

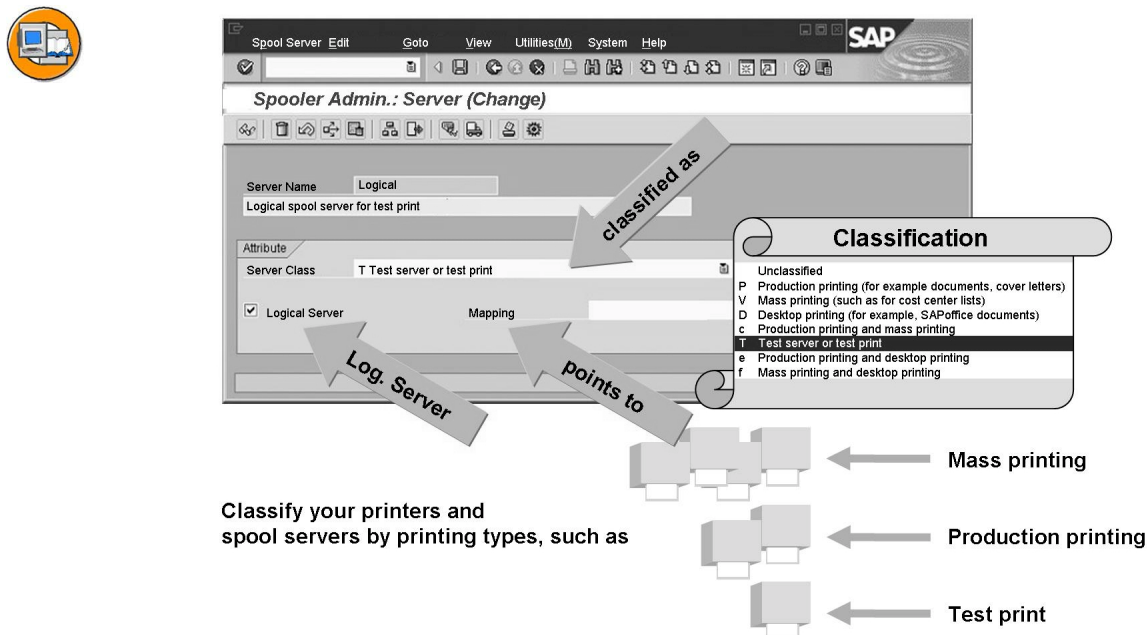


Figure 225: Creating a Logical Server

You can define a spool server (real or logical) **specifically for front-end printing** by setting the profile parameter `rspo/local_print/server` to the server name. If no spool server is explicitly defined in this way, the local application server is used, if this has at least one spool work process. Otherwise, one of the spool servers in the system that has a minimal load is selected for the processing.

If you expect a significant workload due to front-end printing, you should configure at least one additional spool work process for each front-end printing spool server for other tasks.

As already mentioned, you can classify output devices and spool servers. To classify an output device, select it (in transaction SPAD under *Output Devices*) and choose the menu path *Edit* → *Classification*.

Advantages of Logical Spool Servers

Downtime Security

When creating a spool server (either a logical server or a spool server), you can specify an **alternative server**. If the normal server is not available, the SAP system attempts to use this alternative.

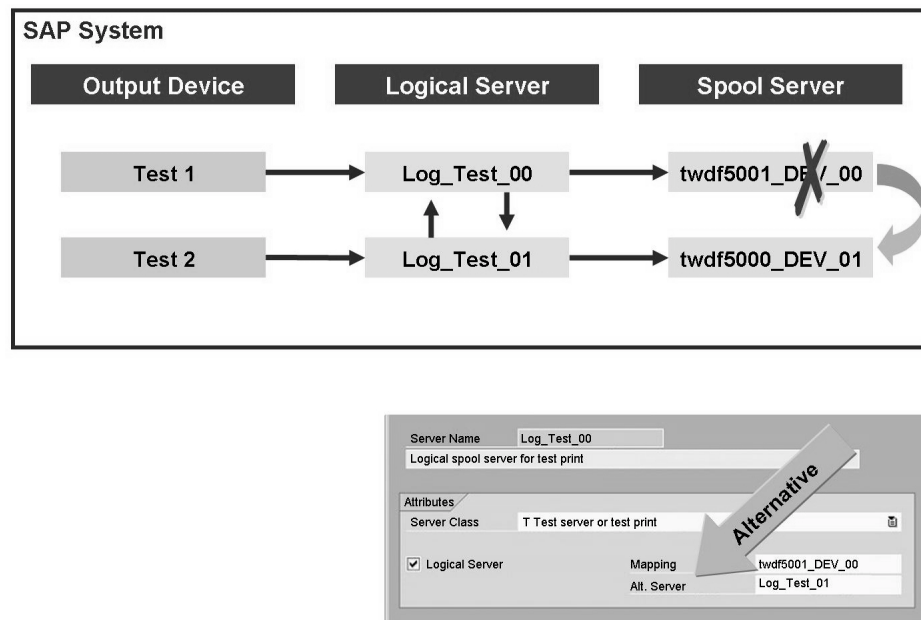


Figure 226: Breakdown Alternatives

You must ensure that all printers that may be used by a different spool server can be controlled in the same way by every spool server. For example, if the output device *Test 1* in the above example points at operating system level to a printer *P42* that is controlled locally, an operating system printer *P42* must be available on servers *twdf5000* and *twdf5001*.

You cannot define more than two spool servers for a logical server. Since a logical server can itself reference logical servers, **extensive spool server hierarchies** are also possible.

Load Balancing

You can allow **load balancing** for every spool server with an alternative server (to do this, select the field *Allow Load Balancing*). The load of a spool server is calculated from the number of spool work processes, output requests, and printed pages.

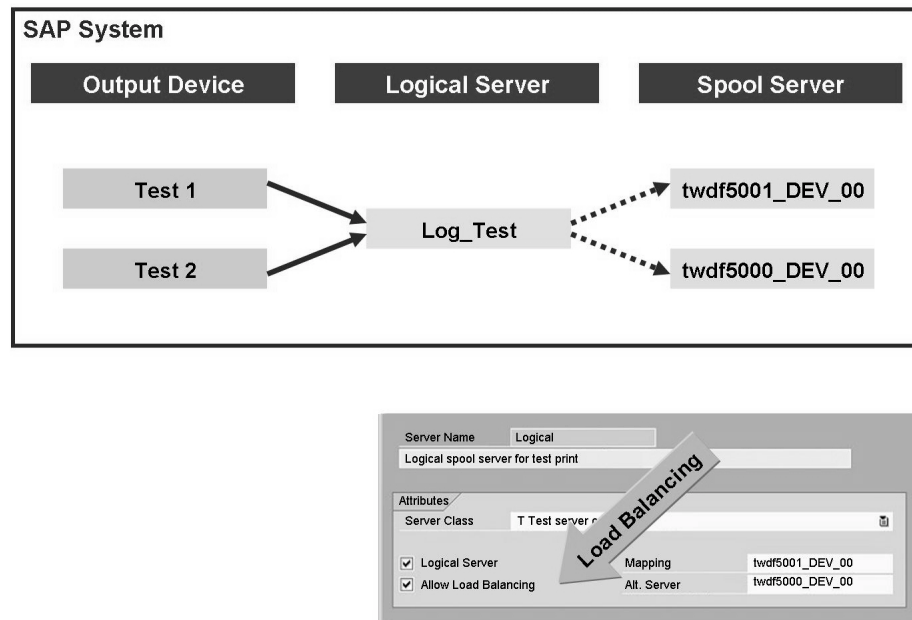


Figure 227: Load Balancing

For an output request for a spool server with load balancing (the setting can be made for logical servers and spool servers), the system determines the server with the smallest load. The algorithm is recursive: The same selection criteria are used on the mapping and the alternative server (both could be logical servers themselves).

Sequential request processing (property of an output device) has priority over the load balancing shown here (property of a spool server). This means that output requests for an output device with sequential request processing would not be distributed in accordance with the current load, although assigned to a spool server with load balancing.

Transporting the Print Landscape

The concept of logical servers supports you when defining a **consistent, transportable print landscape**. Unlike real spool servers, logical servers can have the same name in various SAP systems. In this way, you can define a consistent SAP print architecture in the development system and then transport it to other systems. After the transport, all you need to do is adjust the mapping of the logical servers to the spool servers of the new system.

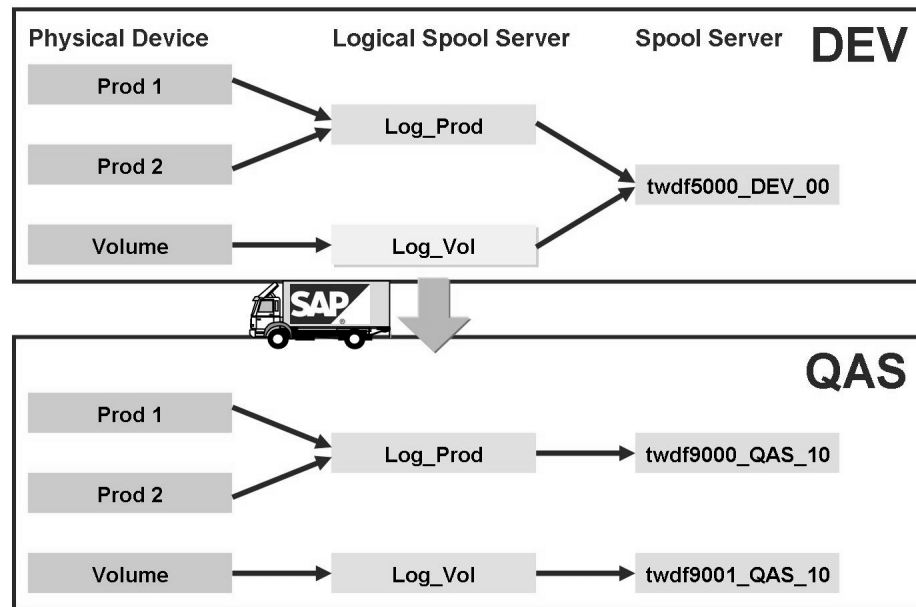


Figure 228: Transporting the Print Landscape

There are functions for the manual transport of output devices and spool servers in transaction SPAD.

Exercise 20: Logical Spool Servers

Exercise Objectives

After completing this exercise, you will be able to:

- Set up logical spool servers and assign output devices

Business Example

Logical spool servers are to be set up in your SAP system for load balancing and downtime security.

Task: Create a Logical Spool Server

1. Create a logical server, **Logical<##>**. If possible, enter two different spool servers as mapping and alternative servers and activate load distribution. Classify Logical<##> as a test server.
2. Change the output device Local<##> so that the logical server Logical<##> is used as its spool server in the future. Classify Local<##> as a test printer.
3. Change the specifications for your SAP user so that an output request is created for each spool request by default.
4. Output any list (suggestion: all profile parameters that begin with “rspo”) without immediate output on the printer Local<##>.
5. Check your output. Which real spool server was used?

Solution 20: Logical Spool Servers

Task: Create a Logical Spool Server

1. Create a logical server, **Logical<##>**. If possible, enter two different spool servers as mapping and alternative servers and activate load distribution. Classify Logical<##> as a test server.
 - a) In the SAP system, choose *Tools → CCMS → Print → Spool Administration* (transaction SPAD). On the *Devices/Servers* tab page, choose *Spool Servers* (leave the field to the right empty). If you cannot see a *Create* pushbutton, choose *Change* to switch to change mode. Now create the logical spool server **Logical<##>**.

Choose *Logical server* and enter at least one spool server for *Mapping*. Enter the other details as described in the exercise and choose save.
2. Change the output device Local<##> so that the logical server Logical<##> is used as its spool server in the future. Classify Local<##> as a test printer.
 - a) From transaction SPAD, choose the *Output Devices* pushbutton on the *Devices / Servers* tab page. By double-clicking Local<##>, you can edit your printer (switch to change mode, if necessary). Now enter the logical spool server **Logical<##>** as the Spool Server on the Device Attributes tab page. To classify the output device, choose *Edit → Classification → Test Print*. Save your entries.
3. Change the specifications for your SAP user so that an output request is created for each spool request by default.
 - a) You can change your user defaults by choosing *System → User Profile → Own Data* (transaction SU3). Check the *Output Immediately* checkbox on the *Defaults* tab page and save.

Continued on next page

4. Output any list (suggestion: all profile parameters that begin with “rspo”) without immediate output on the printer Local<##>.
 - a) Settings from previous exercises may mean that *Output Immediately* is proposed as the time of printing. The user can make this (and other) settings in the print dialog box by choosing *Properties*.



Hint: By choosing *Show selected print parameters on initial screen* on the *Properties* window, you can maintain some parameters directly on the print dialog box in future.

To create the suggested list, start transaction SA38 enter the report RSPFPAR, and execute it. Enter the parameter **rspo*** and choose *Execute* again. Alternatively, you can also print the output of transaction SM51.

To Print, choose the appropriate pushbutton. Alternatively, you can choose *System → List → Print*. Choose the output device **Local<##>** (enter it directly or select it using the F4 help). Choose *Continue* without making any additional entries.

5. Check your output. Which real spool server was used?
 - a) This time, an output request is created immediately. Transaction SP01 displays its status. For the spool server, select your output request (not the spool request) and choose *Choose Detail*. The server name is at the bottom of the list.



Lesson Summary

You should now be able to:

- Describe the concept of logical spool servers
- Set up logical spool servers

Related Information

- SAP Service Marketplace, Quick Link */output*
- SAP Note 118057 - *Flexible Configuration of the Spool Service*

Lesson: Managing Spool Requests

Lesson Overview

In this lesson, you will learn about managing spool and output requests.



Lesson Objectives

After completing this lesson, you will be able to:

- Manage spool and output requests

Business Example

As a spool administrator, you maintain the spool and output requests in your SAP system.

Managing Spool and Output Requests

To **maintain spool and output requests**, call the Output Controller (transaction SP01 or choose *System* → *Services* → *Output Controller*). If you only want to check the status of your own spool requests, choose *System* → *Own Spool Requests* (transaction SP02).

Transaction SP01 provides many **selection criteria** for selecting particular spool or output requests. Every user can individually and easily define the selection criteria that he or she requires using the *Further Selection Criteria...* function.

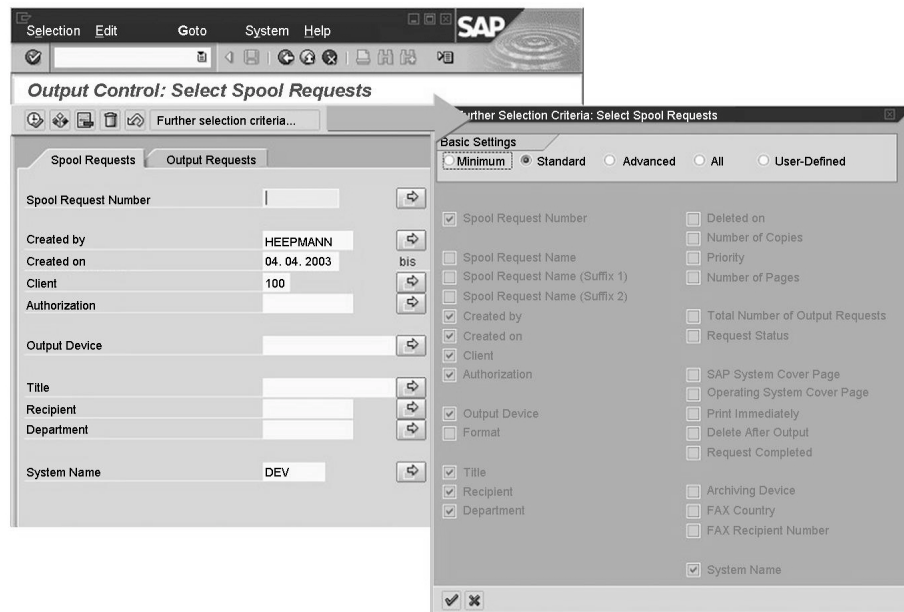


Figure 229: Selecting Spool or Output Requests

It is even possible to monitor spool and output requests on other SAP systems. To do this, enter a valid RFC connection in the *System Name* field. If this field remains empty, all systems that were selected for remote monitoring using transaction RZ20 (table ALCONSEG) are addressed.



Output Control: List of Spool Requests

Spool No.	Ty	User	Date	Time	Status	Pages	Title
4411		HEEPMANN	04.04.2003	18:50	<F5>	1	LIST1S GULQ RSUSR000_HEE
4410		HEEPMANN	04.04.2003	18:49	-	1	LIST1S GULQ RSUSR000_HEE
4409		HEEPMANN	04.04.2003	18:49	Compl.	1	LIST1S GULQ RSUSR000_HEE
4408		HEEPMANN	04.04.2003	18:47	-	2	LIST1S GULQ RSUSR000_HEE

2 Output requests displayed
 1 Output request successfully completed
 1 Output request with errors (possibly no output)

Output Control: List of Output Requests

Spool No.	ORNo	User	Time	Output Device	Format	Pr	Status Text for Output Request
4411	2	HEEPMANN	18:51	GulpFrontend	X_65_200		Compl.
4411	1	HEEPMANN	18:51	GulpFrontend	X_65_200		Errors (Error when sending data)

2 Output requests displayed
 1 Output request successfully completed
 1 Output request with errors (possibly no output)

Figure 230: Monitoring Spool and Output Requests

The displayed list shows all spool or output requests that match your selection criteria. The list is created using the SAP List Viewer (ALV). This allows you to change the appearance of the list as you desire. This means that you can show and hide columns, sort columns, or create variants.

The following indicators specify the **status** of a spool request:

- Not yet sent to the operating system (no output request exists).
- + Spool request is still being created (stored in spool system).

Waiting

The output request has not yet been processed by the spool system.

Proc.

A spool work process is formatting the output request for printing.

Print.

The output request is being printed by the operating system spooler. If the query at the host spooler is not activated, this status is shown for around a minute.

Compl.

The output request has been printed. If the query at the host spooler is not activated, the status changes to *Compl.* as soon as the output request is transferred to the host spooler.

<F5>

There are output requests with various statuses.

Problem

Indicates an error not of a serious nature (such as incomplete character set). This request was still printed.

Error

Indicates a serious error (such as a network error).

Time

A particular time was specified for the output of the request by the request creator.

If you select the status of a spool request, the system displays the associated output requests. For the output requests of multiple spool requests, select these and choose *Output Requests* (or choose *F5*).

For every unsuccessful output request, a log is written that you can use for error analysis.

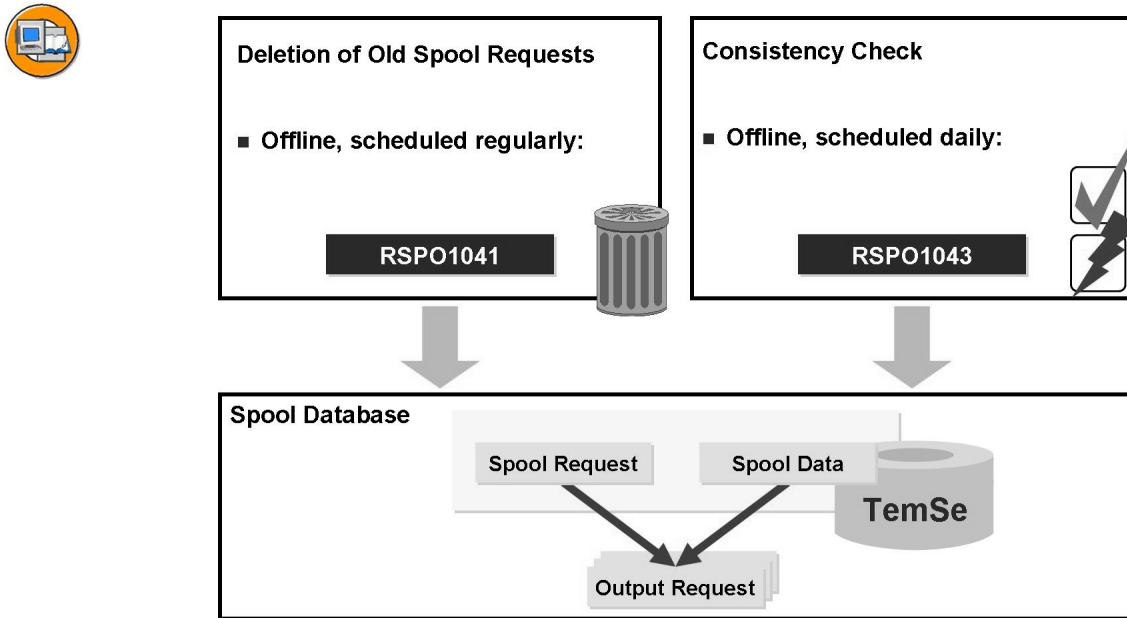


Figure 231: Maintaining the Spool Database

Regular deletion of old spool requests and monitoring the consistency of the spool database are system administration tasks.

To **delete old spool requests**, schedule the ABAP program *RSPO1041* with an appropriate variant as a **periodically** running background job. For more information about *RSPO1041*, see SAP Note 130978.

To **check the consistency of the spool database**, schedule the ABAP program *RSPO1043* with an appropriate variant as a **daily** running background job. For more information about *RSPO1043*, see SAP Note 98065.

For information about the reorganization of TemSe and spool, see also SAP Note 48400.

Appendix: Other Print Scenarios

Here is an overview of other print scenarios:

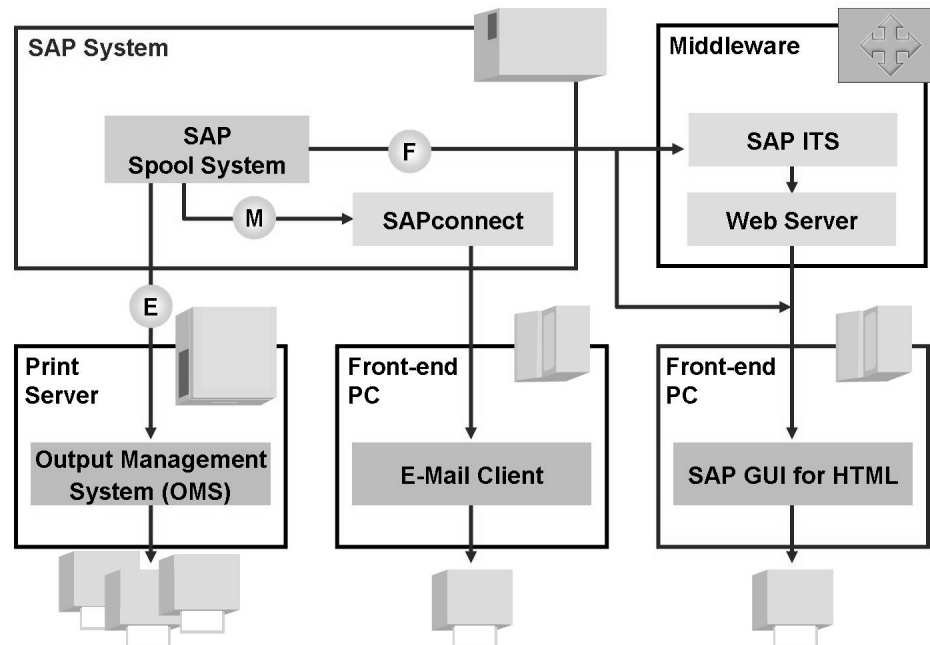


Figure 232: Appendix: Other Print Scenarios

External Output Management Systems (OMS) can be addressed from the SAP system using a defined interface (BC-XOM) (access method E). This method is of particular interest if you have a very large volume, or the output of multiple systems (SAP systems and others) is to be centrally controlled and monitored. For a list of all certified products, see <http://www.sap.com/softwarepartnerdir> (Software Partner and Product Directory).

Since SAP Basis 4.0B (as of a particular kernel and Support Package status), you can **send print output by e-mail** to a user (access method M). The e-mail is sent using SAPconnect. For more information, see SAP Notes 311037 and 513352.

A user can also be connected to an SAP system from a Web browser through the SAP GUI for HTML. A connection of this type can be made directly using the SAP system (with the integrated ITS, as of SAP Web AS 6.40), through the middleware (Web server and SAP ITS) of the SAP system, or as part of an enterprise portal (such as the SAP Enterprise Portal). What options does this user have for print output? One option is the previously described output by e-mail. On the other hand, **Web printing** does not require an e-mail client. You can use Web printing as of SAP Basis 4.6B. To do this, the system administrator must provide a printer with device type PDF1 and access method F. If the user selects this printer, a PDF document appears in a new window. The user can then print this PDF document. SAP Note 351230 describes the exact prerequisites and contains additional information about Web printing.

Exercise 21: Managing Spool Requests

Exercise Objectives

After completing this exercise, you will be able to:

- Manage spool and output requests

Business Example

Task:

1. Display a spool request.
2. Create an output request for the spool request.
3. Check the status of your output request.
4. (Optional) Display the generated print data. Instead of checking at operating system level, you can view the file from the SAP system using transaction AL11 (SAP directory *DIR_C_TEMP*).

Solution 21: Managing Spool Requests

Task:

1. Display a spool request.
 - a) Choose *System* → *Services* → *Output Controller* (transaction SP01). Restrict the output to **your spool requests from today** (this is the default selection). Your spool request should have status “-”.
2. Create an output request for the spool request.
 - a) Select a spool request and choose *Print Directly*.
3. Check the status of your output request.
 - a) Refresh the list of spool requests. Does the status change to *complete*? If not, select the *Status* field and analyze the log.
4. (Optional) Display the generated print data. Instead of checking at operating system level, you can view the file from the SAP system using transaction AL11 (SAP directory *DIR_C_TEMP*).
 - a) Both solutions are described here:
 - At operating system level, you can use, for example, Notepad (*Start* → *Run*, and then enter **notepad**) to display the file *C:\temp\Print1.prn* or *C:\temp\Print2.prn*. Note that Notepad cannot display all printer-specific control characters.
 - In the SAP system, call transaction AL11 and choose the entry *DIR_C_TEMP* at the end of the list. Select the file name (*Printfile1* or *Printfile2*). This displays the file contents.



Lesson Summary

You should now be able to:

- Manage spool and output requests

Related Information

- SAP Library: *SAP NetWeaver* → *SAP NetWeaver Technical Operations Manual* → *Administration of the SAP Web Application Server (ABAP)* → *Management* → *Printing*
- SAP Service Marketplace, Quick Link */output*
- SAP Notes
 - SAP Note 130978: *RSPO1041 - Deleting old spool requests*
 - SAP Note 98065: *Spool Consistency Check with RSPO1043 as of 4.0A*
 - SAP Note 48400: *Reorganization of TemSe and Spool*
 - SAP Note 311037: *Printing via e-mail*
 - SAP Note 351230: *Frontend printing with HTML GUI/WebGUI*



Unit Summary

You should now be able to:

- Describe the architecture and data flow of output processing in the SAP system
- Create printers and spool servers in the SAP system
- List important access methods
- Manage spool requests
- Describe the concept of logical spool servers
- Set up logical spool servers
- Manage spool and output requests



Test Your Knowledge

1. Which of the following access methods exist in the SAP system?

Choose the correct answer(s).

- ☐ A Remote printing
- ☐ B Front-end printing
- ☐ C Instance printing
- ☐ D Local printing

2. Which of the listed states can a spool request have?

Choose the correct answer(s).

- ☐ A Compl.
- ☐ B Canceled
- ☐ C Error
- ☐ D Waiting
- ☐ E Active
- ☐ F Print.



Answers

1. Which of the following access methods exist in the SAP system?

Answer: A, B, D

Instance printing does not exist.

2. Which of the listed states can a spool request have?

Answer: A, C, D, F

The incorrect options *canceled* and *active* are possible status messages from job monitoring. Other possible statuses of a spool request are -, +, *Proc.*, <F5>, *Problem*, and *Time*.

Unit 11

Scheduling Background Tasks

Unit Overview

The topics that this unit deals with are the basics of background processing, and the scheduling and monitoring of jobs. You will also learn about special functions and extension options of background processing.



Unit Objectives

After completing this unit, you will be able to:

- Describe the uses of background processing
- Schedule and monitor jobs
- Schedule time-dependent jobs
- Schedule standard jobs
- Schedule event-dependent jobs
- Define and trigger events
- Use additional, special functions of background processing

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Lesson: Fundamentals of Background Processing

Lesson Overview

In this lesson, you will learn about the basics of background processing.



Lesson Objectives

After completing this lesson, you will be able to:

- Describe the uses of background processing
- Schedule and monitor jobs

Business Example

Reports to be run regularly and long-running programs are scheduled as background jobs in the SAP system. The administrator schedules background jobs and monitors the correct process of the system's background processing.

Basics

The following questions are answered in the course of this lesson:

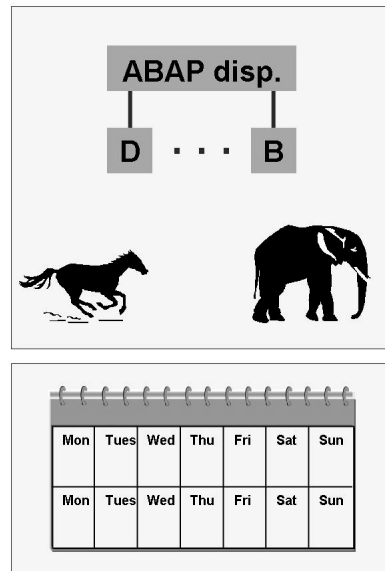


- Why do you need background processing?
- What is a background job?
- What can be performed in the background?
- What start criteria are there?
- How are jobs scheduled and monitored?
- What status can a job have?

Dialog work processes should be able to respond to end users' requests quickly. Dialog resources should therefore not be burdened with long-running programs. This can lead to bottlenecks in the dialog response time. The system profile parameter *rdisp/max_wprun_time* exists for this reason. It limits the maximum runtime of a dialog step within a dialog work process. This should ensure that dialog work processes are not blocked by long-running programs, interfering with online operation. After the maximum runtime has elapsed, the program is terminated.



Note: The way in which the parameter *rdisp/max_wprun_time* works is described in detail in SAP Note 25528.



- Reduce the load on dialog resources

- Schedule regular tasks

Figure 233: Why Background Processing?

You can use the background work processes for long-running tasks. These are sometimes also called “batch work processes”.

Normally, background processing is used not only for long-running, but also for recurrent tasks. Examples of this type of task are the daily database backup or the month end work for financial accounting.

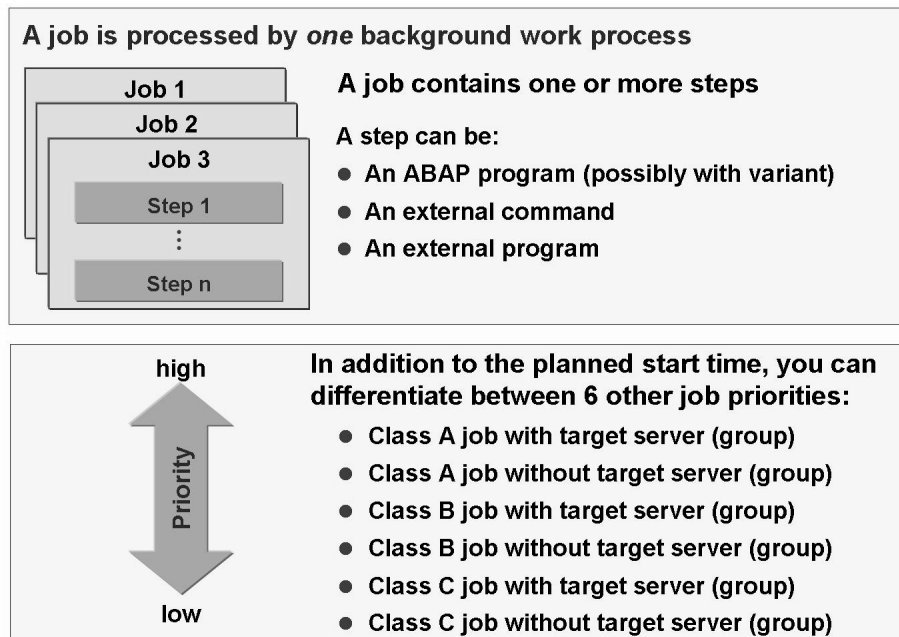


Figure 234: What Is a Background Job?

A background job consists of one or more steps (job steps). A step can be:

- An ABAP program
- An external command
- An external program

Every job is processed without interruption by one single background work process.

Background jobs can be scheduled with different priorities:

- Class A (highest priority)
- Class B (medium priority)
- Class C (normal priority)

If a job should be executed on a particular server or server group, it is handled preferentially compared to other jobs with the same class. This preference only applies if multiple jobs of various priorities request background processing at the same time, for example, because they are scheduled for the same time.



Hint: You should ensure that a large share of all background tasks are normally scheduled as class C without target server specification. This share can include 90% (or more) of all tasks. System background tasks are also executed in this way, such as the tasks that you schedule with transaction DB13.

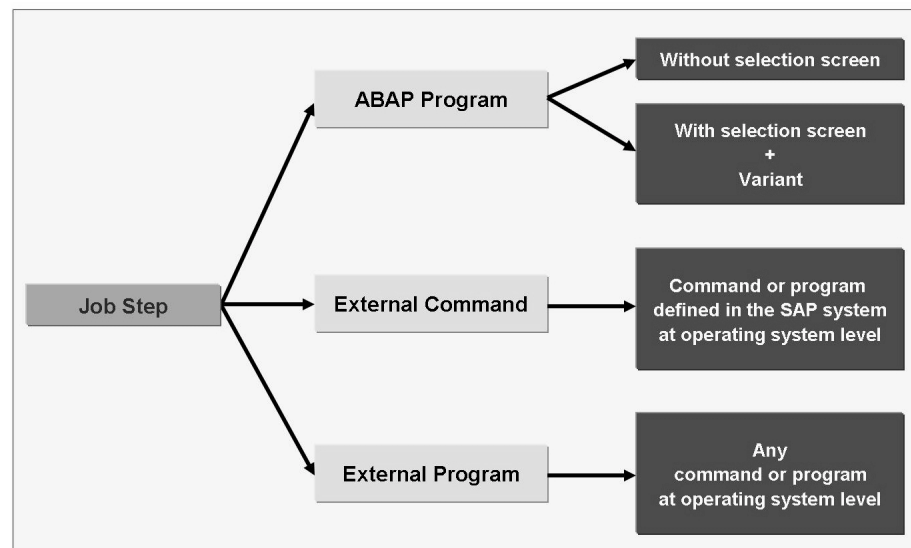


Figure 235: What Can Be Performed in the Background?

A step within a job can call one of three actions:

- Every **ABAP program** can be scheduled as a step of a job. If the ABAP program has one or more selection screens, you must create the input required there in advance in the form of a variant. A variant makes it possible to run an ABAP program in the background although the program requires input. The values stored in the variant are then used during the execution of the program. If an ABAP program has a screen output as its result, this is directed to a spool list. You can specify an (e-mail) recipient for this spool list during the definition of the job. This recipient then receives the output of the job by e-mail after the job has been run. You must also specify a printer for the creation of a spool list, although there is not necessarily any direct output to a printer as a result of background processing (this depends on the printer's access method). This may have to be explicitly started later.
- An **external command** is a call of a predefined script, a command, or a program at operating system level. With external commands, you can mask operating system calls and store them in the SAP system under a name. You can also use the SAP authorization concept to protect the execution of an external command. This enables you to determine which users are allowed to execute which external commands (on which target hosts and/or operating systems).
- An **external program** is any operating system command. The SAP authorization concept only specifies whether a user can call external programs or not. A more detailed authorization assignment, for example at the level of program names, is not provided; use external commands for this.

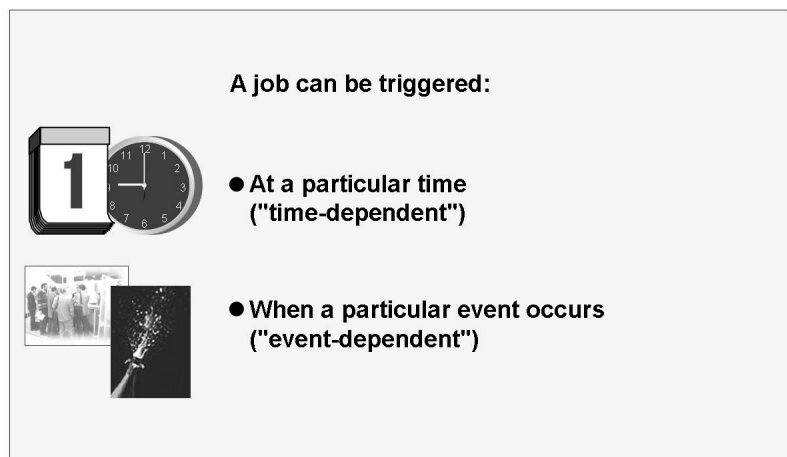


Figure 236: Start Criteria for a Background Job

A job can be triggered:

- By scheduling it on a particular date at a particular time (this includes the start time immediately, if there are no free background work processes available when the job is scheduled).
- By the occurrence of a particular event defined in the SAP system (this includes jobs that are to start after other jobs or at operation mode changes, or jobs with immediate start if there are free background work processes available when the job is scheduled).

Scheduling and Monitoring

Use transaction SM36 to define new jobs. You can also call the Job Wizard (transaction SM36WIZ) from transaction SM36.

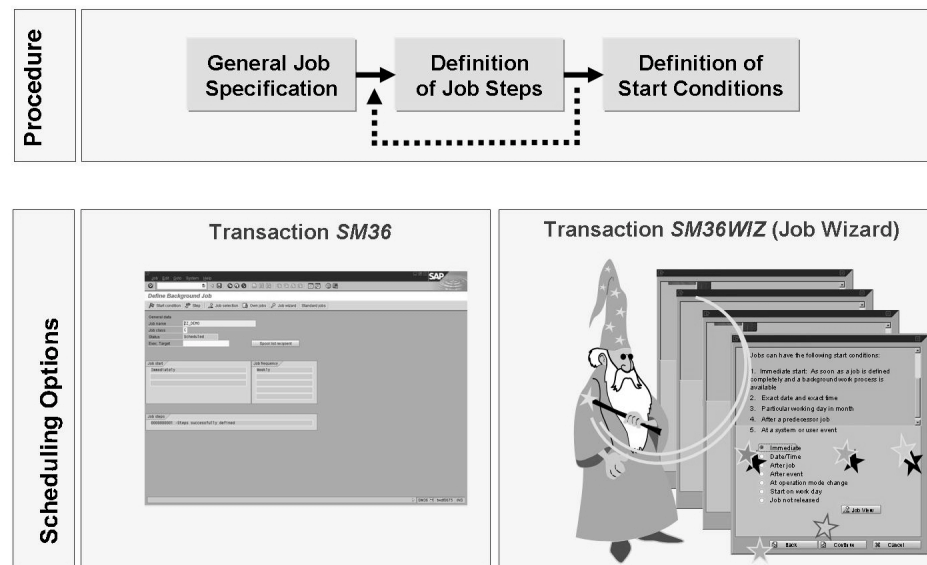


Figure 237: Job Scheduling

Required specifications when defining a job are:

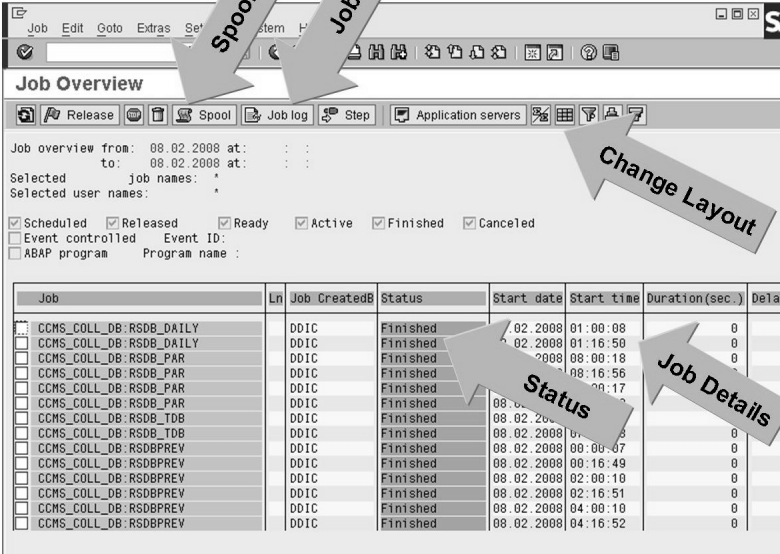
- General specifications such as job name, job priority (Default: C) and (optionally) target server (group)
- Definition of one or more job steps
- Definition of start conditions (time- or event-controlled)

The Job Wizard supports you when defining jobs, by guiding you easily through the creation process.

The method of creation of a background job (“classic” or using the Job Wizard) has no bearing on the result. Some functions (specifying an SAP user for each step, swapping steps) are not available with the Job Wizard, however.

Use transaction SM37 to monitor jobs.

You can select jobs using a diverse range of criteria on the initial screen of this transaction. In this way, you can display all jobs that contain a particular job step, that have a particular status, or that react to a defined event (for this, you must select a particular event or “*”).



The screenshot shows the SAP Job Overview (SM37) transaction. The interface includes a menu bar (Job, Edit, Goto, Extras, Set, System, Help), a toolbar with icons for Release, Spool, Job log, Step, and Application servers, and a main area with filters and a job list table. Annotations with arrows point to various parts of the screen:

- Selection Criteria:** Points to the filter section on the left, including checkboxes for Scheduled, Released, Ready, Active, Finished, and Canceled, as well as Event controlled and ABAP program options.
- Spool List:** Points to the Spool icon in the toolbar.
- Job log:** Points to the Job log icon in the toolbar.
- Change Layout:** Points to the Change Layout icon in the toolbar.
- Status:** Points to the Status column in the job list table.
- Job Details:** Points to the Job Details icon in the toolbar.

Job	Ln	Job Created	Status	Start date	Start time	Duration(sec.)	Delay
CCMS_COLL_DB:RSDB_DAILY	DDIC	Finished	08.02.2008	01:00:08	0		
CCMS_COLL_DB:RSDB_DAILY	DDIC	Finished	08.02.2008	01:16:50	0		
CCMS_COLL_DB:RSDB_PAR	DDIC	Finished	08.02.2008	08:00:18	0		
CCMS_COLL_DB:RSDB_PAR	DDIC	Finished	08.02.2008	08:16:56	0		
CCMS_COLL_DB:RSDB_PAR	DDIC	Finished	08.02.2008	08:16:56	0		
CCMS_COLL_DB:RSDB_PAR	DDIC	Finished	08.02.2008	08:16:56	0		
CCMS_COLL_DB:RSDB_TDB	DDIC	Finished	08.02.2008	08:16:56	0		
CCMS_COLL_DB:RSDB_TDB	DDIC	Finished	08.02.2008	08:16:56	0		
CCMS_COLL_DB:RSDBPREV	DDIC	Finished	08.02.2008	08:00:07	0		
CCMS_COLL_DB:RSDBPREV	DDIC	Finished	08.02.2008	08:16:49	0		
CCMS_COLL_DB:RSDBPREV	DDIC	Finished	08.02.2008	02:00:10	0		
CCMS_COLL_DB:RSDBPREV	DDIC	Finished	08.02.2008	02:16:51	0		
CCMS_COLL_DB:RSDBPREV	DDIC	Finished	08.02.2008	04:00:10	0		
CCMS_COLL_DB:RSDBPREV	DDIC	Finished	08.02.2008	04:16:52	0		

Figure 238: Job Monitoring

After you have chosen *Execute*, a **job overview** appears that is realized by the SAP List Viewer (ALV). By choosing *Settings* from the menu you can determine the columns that are displayed and the sort order, amongst other things. You can set this layout as the standard layout (for the current user or for all users).



Hint: The transaction SM37 offers the following two ALV-based display types:

- *LIST*: offers a quick list structure (standard setting)
- *GRID*: enables you to change the layout easily (required for accessibility)

Using the program *BTC_SWITCH_LIST_GRID*, a batch administrator can determine the display type for individual users or all users.

You can navigate to other job-specific views from the job overview shown above:

- The **spool list** contains the output lists for ABAP programs (if they exist).
- The **job details** contain, among other information, the job definition, duration of the processing of the job, and the start time of the job.
- All messages output by a background program are stored in the **job log**. You can display this log to obtain information about a program that terminated with errors or to perform a detailed investigation about a background processing run.

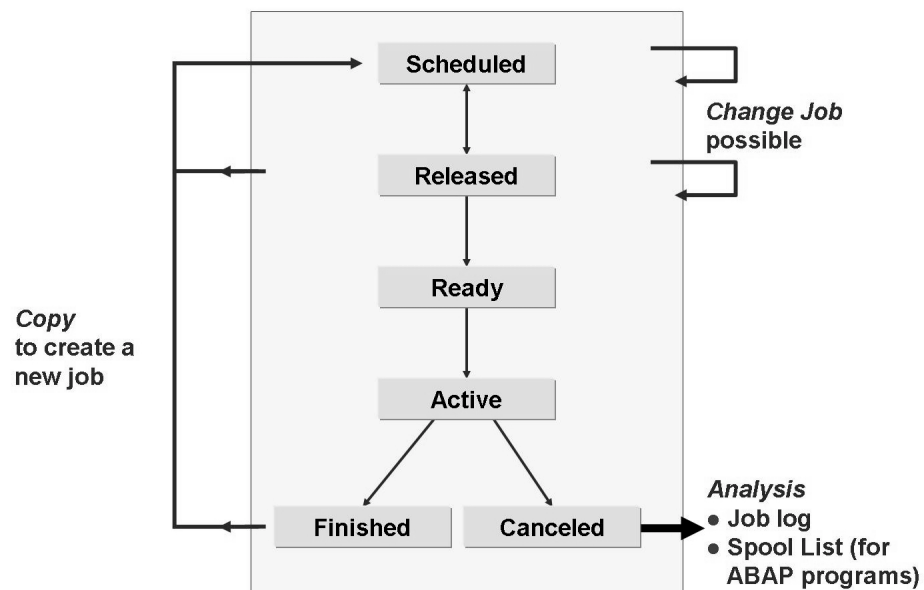


Figure 239: Status of a Job

A job can have the following statuses:

Scheduled

The steps that make up the job have already been defined, however the start condition still needs defining.

Released

The job has been completely defined, including its start condition. A job cannot be released without a start condition. Only an administrator or a user with the relevant authorizations for background processing can release a job. This ensures that unauthorized users cannot execute jobs without approval.

Ready

The start condition of a released job has been fulfilled. A job scheduler has placed the job in the wait queue for a free background work process.

Active

The job is currently being executed and cannot be deleted or changed.

If an active job does not seem to be running correctly (for example, it is running for an unusually long time), you can terminate it in a background work process in debugging mode, analyze it, and then either release it again or terminate it completely. To do this, in transaction SM37, choose *Job* → *Capture: active job*.



Hint: To capture a background job, you must be logged on to the SAP server where the job is running.

Finished

All steps of this job were successfully completed.

Canceled

The job aborted. This can happen in two ways:

- An administrator deliberately terminates the job in transaction SM37 by choosing *Job* → *Cancel active job*.
- A job step is terminated with an error.

You can still change a job as long as the job still has the status Scheduled or Released.

If the execution of the job has already begun, you can monitor the processing in the job log. If the job contains ABAP programs that create output lists, these are stored in spool lists.

You can create a new job by copying an existing job. From the menu, choose *Job* → *Copy*.

Exercise 22: Fundamentals of Background Processing

Exercise Objectives

After completing this exercise, you will be able to:

- Determine the configuration of your SAP system with regard to background processing.

Business Example

Reports to be run regularly and long-running programs are scheduled as background jobs in the system. The administrator schedules background jobs and monitors the correct process of the system's background processing.

Task: Checking the Configuration

Check the way that background processing is configured in your SAP system. The following steps will make you familiar with the SAP system settings that are relevant for background processing.

1. How many background processes are currently configured in your SAP system?
2. What determines the number of available background work processes?
3. How many background jobs can be processed simultaneously?
4. Assume that all background work processes in your system are currently processing and there are, therefore, no free resources for other jobs. Can you set up additional background work processes without restarting the SAP system?

Solution 22: Fundamentals of Background Processing

Task: Checking the Configuration

Check the way that background processing is configured in your SAP system. The following steps will make you familiar with the SAP system settings that are relevant for background processing.

1. How many background processes are currently configured in your SAP system?
 - a) Start transaction SM66.
 - b) Choose the *Select Process* pushbutton to make the following selections:
 - *Type*: *Background* only
 - *Status*: choose *Wait* in additionChoose *Continue* and count the number of work processes displayed.
2. What determines the number of available background work processes?
 - a) The parameter *rdisp/wp_no_btc* initially specifies the number of available background work processes on the current instance. You can check the value of the parameter with transaction RZ11 or the report RSPFPAR.

If you have defined operation modes (transaction RZ04), this value can be overwritten. In this case, use the CCMS Control Panel (transaction RZ03) to specify the current operation mode.
3. How many background jobs can be processed simultaneously?
 - a) The SAP system process as many jobs concurrently as there are background work processes available.
4. Assume that all background work processes in your system are currently processing and there are, therefore, no free resources for other jobs. Can you set up additional background work processes without restarting the SAP system?
 - a) Using the concept of operation modes, you can define an operation mode with additional background work processes in transaction RZ04. You can then perform a manual operation mode switch using transaction RZ03. You do not need to restart your system when doing this.



Lesson Summary

You should now be able to:

- Describe the uses of background processing
- Schedule and monitor jobs

Related Information

- SAP Note 519059: FAQ: Background Processing System
- SAP Note 25528: Parameter *rdisp/max_wprun_time*

Lesson: Time-Based Scheduling of Jobs

Lesson Overview

In this lesson, you will learn about time-based scheduling of jobs.



Lesson Objectives

After completing this lesson, you will be able to:

- Schedule time-dependent jobs
- Schedule standard jobs

Business Example

The administrator schedules background jobs and monitors the correct process of the system's background processing.

Time-Based Scheduling



- Immediate start
 - Once or periodically
 - You can define exceptions for periodic scheduling

- At a particular time/date
 - Once or periodically
 - You can define exceptions for periodic scheduling

rdisp/btctime

- A day relative to the start/end of the month
 - Once or periodically

For example: 4. Working day of the month

Figure 240: Time-Dependent Start of a Job

A job can be started in a time- or event-dependent manner. In the case of a time-dependent start of a job, you can choose between the following options:

- The job should be executed immediately
- The job should be executed at a particular date/time
- The job should be executed on a particular work day

You can choose to make all time-based start conditions for jobs recurrent. This means that the job is executed again after a defined period of time has elapsed. You can specify exceptions (such as postponement to the following work day in the case of holidays in the factory calendar).

The job is started at the specified date and time, in accordance with the job priority and availability of background work processes.

You can also specify a time period during which the job should be executed. To do this, you specify a time after which the job should no longer be executed. With this function, you prevent periodic jobs being executed at an undesirable time, among other things. For example, a reorganization job that should only be executed at night is delayed. With a start time window, you can avoid this job being executed during the day, when the dialog users are active and there are fewer system resources available.

Load Balancing

The profile parameter *rdisp/bctime* specifies the time period in which the time-dependent job scheduler is active (see the next figure). The execution of jobs with the start condition *immediate* usually avoids the time-based scheduler. In this case, the dialog work process of the scheduling user performs the job scheduling. Only if no free resources are found, is the job concerned scheduled in a time-based way. The scheduled start time then corresponds to the time point at which it should have started.

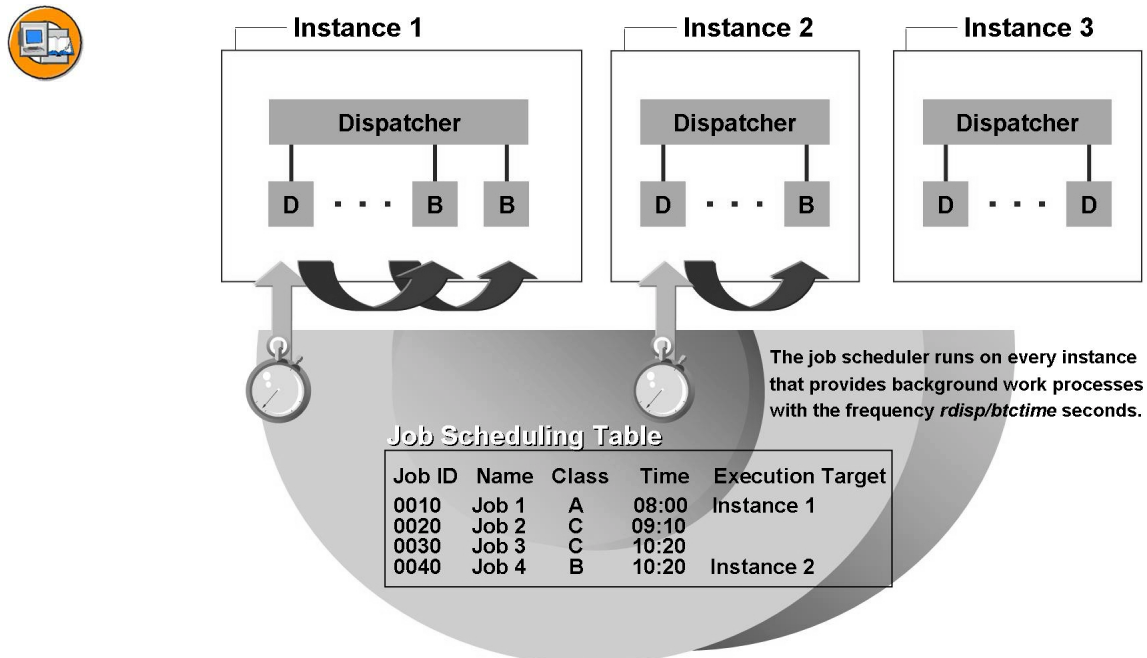


Figure 241: Scheduling Jobs and Load Balancing

Background work processes can be configured on every instance of the SAP system using the profile parameter *rdisp/wp_no_btc*.

The number of background work processes required in the SAP system depends on the number of tasks to be performed in the background. If the transport system is used, there must be at least two background work processes in the system.

The combination of job ID and job name define the job uniquely in the system.

On every SAP instance on which background work processes are defined, the time-dependent job scheduler runs every *rdisp/btctime* seconds (Default value: 60 seconds). This is an ABAP program (*SAPMSSY2* - an "Auto ABAP") that runs automatically in a dialog work process.



Hint: As of SAP NetWeaver 7.0, the Job Scheduler also starts after a job has finished. This increases the throughput for background processing considerably (depending on how many jobs there are).

SAP Note 923228 describes how you can activate this for SAP systems with Basis release 4.6C and above.

The time-dependent job scheduler checks the job scheduling table in the database for jobs that are waiting for processing. These jobs are transferred to free background work processes in the SAP instance, in accordance with their priority and execution target.

- Jobs that are not assigned any particular execution target can be executed with any free background work process. This means that the workload is automatically distributed between the SAP instances.
- If a job is explicitly assigned an execution target (such as a selected instance or a group of instances), the special properties of the execution target can be used (for example, you can ensure that a job is performed on a particular operating system, or that the job is executed by a background work process that is running on the same host as the database). This means, however, that you do not have the advantages of automatic load balancing.

Standard Jobs

Standard jobs are background jobs that should run regularly in a production SAP system. These jobs mainly perform certain clean up tasks in the system, such as the deletion of obsolete spool requests.

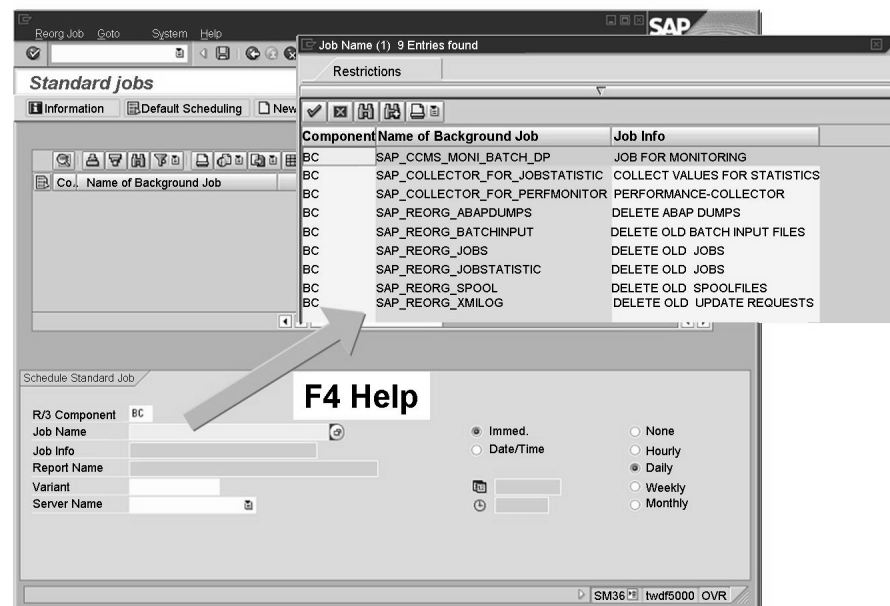


Figure 242: Scheduling Standard Jobs

In the job definition transaction (SM36), you can access a selection of important standard jobs that you can schedule, monitor, and edit by choosing *Standard Jobs* (see figure).

- If you want to schedule all standard jobs, choose *Default Scheduling*. All standard jobs that are defined in table REORGJOBS are scheduled with the specified variant and period. If other jobs exist that execute one of the programs of the standard jobs, the system informs you of this.
- To schedule individual jobs, choose the selected job with the input help and specify an execution period.
- To define an additional standard job that is not yet available in the selection (table REORGJOBS), choose *Predefine new job*.

Exercise 23: Time-Based Jobs

Exercise Objectives

After completing this exercise, you will be able to:

- Schedule and monitor time-dependent jobs

Business Example

The administrator schedules background jobs and monitors the correct process of the system's background processing.

Task 1: Check Profile Parameter

Check the setting for the time-dependent Job Scheduler.

1. What is the time interval for the time-dependent Job Scheduler in your system?

Result

You now know every how many seconds the time-dependent Job Scheduler is started.

Task 2: Optional: Variants

Create a variant for an ABAP program.

1. Create a variant **DISP_##** for the program *RSPFPAR* (## stands for your group number) which only issues parameters for the ABAP dispatcher.

Result

You have created a variant for an ABAP program.

Task 3: Schedule Jobs

Create background jobs with various tools.

1. Use transaction SA38 to run the report *RSPFPAR* in the background (start time *Execute immediately*). For the *Variant*, select the name *DISPATCHER* or (if you have carried out the previous task) *DISP_##*.
2. Use the transaction SM36WIZ to create a job with the following characteristics:

Continued on next page

<i>Job Name</i>	ADM100-TIME-WIZ-##
<i>Job Class</i>	C
<i>Target Server</i>	Leave empty
1. step	Program <i>RSUSR000</i>
Start Condition	<i>Immediate</i>
Period	Hourly

3. Use the transaction SM36 (without the wizard) to create a job with the following characteristics:

<i>Job Name</i>	ADM100-TIME-PURE-##
<i>Job Class</i>	C
<i>Target Server</i>	Leave empty
1. step	Program <i>RSPFPAR</i> with variant <i>DISPATCHER</i> or <i>DISP_##</i>
Start Condition	<System time + 3 minutes>
Period	Daily



Hint: Bear in mind that for jobs, the system time (*System* → *Status*) is the determining factor...

Result

You can schedule time-dependent jobs with different tools.

Task 4: Monitor Jobs

Monitor background jobs.

1. Display all your jobs for today.
2. Find out details for the job *RSPFPAR* such as the priority, client, job ID, user who scheduled and released the job, and the work process that executed the job.
3. Take a look at the spool list for the job *ADM100-TIME-WIZ-##*.
4. Determine whether the job *ADM100-TIME-PURE-##* was delayed, and if so, the length of the delay.
5. In SM37, why do you see the next job *ADM100-TIME-WIZ-##*, but not the next job *ADM100-TIME-PURE-##*?

Solution 23: Time-Based Jobs

Task 1: Check Profile Parameter

Check the setting for the time-dependent Job Scheduler.


1. What is the time interval for the time-dependent Job Scheduler in your system?
 - a) Determine the value of the profile parameter *rdisp/btctime* (with either the transaction RZ11 or the report *RSPFPAR*).

Result

You now know every how many seconds the time-dependent Job Scheduler is started.

Task 2: Optional: Variants

Create a variant for an ABAP program.

1. Create a variant **DISP_##** for the program *RSPFPAR* (## stands for your group number) which only issues parameters for the ABAP dispatcher.
 - a) Start the transaction SA38 and enter **RSPFPAR** as the *Program*. Choose *Execute*.
 - b) Under *Profile Parameters* enter **rdisp/*** and choose *Save as Variant* ()
 - c) Under *Variant Name* enter **DISP_##**, and under *Meaning* enter any text.
 - d) Leave the other fields unchanged and *Save* the new variant.

Result

You have created a variant for an ABAP program.

Continued on next page

Task 3: Schedule Jobs

Create background jobs with various tools.

1. Use transaction SA38 to run the report *RSPFPAR* in the background (start time *Execute immediately*). For the *Variant*, select the name *DISPATCHER* or (if you have carried out the previous task) *DISP_##*.
 - a) Start the transaction SA38 and enter **RSPFPAR** as the *Program*.
 - b) Choose *Background*.
 - c) Select the variant *DISPATCHER* or *DISP_##* (using the F4 help).
 - d) Choose *Execute Immed.* Use the *Job Overview* pushbutton to go to the transaction SM37, where you can display the results of your job (*Execute* pushbutton).
2. Use the transaction SM36WIZ to create a job with the following characteristics:

<i>Job Name</i>	ADM100-TIME-WIZ-##
<i>Job Class</i>	<i>C</i>
<i>Target Server</i>	Leave empty
1. step	Program <i>RSUSR000</i>
Start Condition	<i>Immediate</i>
Period	Hourly

- a) Start the transaction SM36WIZ and choose *Continue*.
 - b) Fill the screens as specified in the task. Use the F4 Help wherever possible. Where no values have been specified, use the default values.
 - c) To finish, choose *Complete*.
3. Use the transaction SM36 (without the wizard) to create a job with the following characteristics:

<i>Job Name</i>	ADM100-TIME-PURE-##
<i>Job Class</i>	<i>C</i>
<i>Target Server</i>	Leave empty

Continued on next page

1. step	Program <i>RSPFPAR</i> with variant <i>DISPATCHER</i> or <i>DISP_##</i>
Start Condition	<System time + 3 minutes>
Period	Daily



Hint: Bear in mind that for jobs, the system time (*System* → *Status*) is the determining factor...

- a) Start transaction SM36.
- b) Under *Job Name* enter **ADM100-TIME-PURE-##**.
- c) Choose *Step*. Enter the specifications for the step that are listed in the task and choose *Save*. Then choose *Back* (↶).
- d) Choose *Start Condition*. Choose *Date/Time* and enter a time <system time + 3 minutes>. Select the *Periodic Job* checkbox and under *Period Values*, select *Daily*. Then choose *Save*.
- e) Finally, on the initial screen for transaction SM36, choose *Save once*.

Result

You can schedule time-dependent jobs with different tools.

Task 4: Monitor Jobs

Monitor background jobs.

1. Display all your jobs for today.
 - a) Start transaction SM37. Include *scheduled* jobs in the selection too. Then choose *Execute*.
2. Find out details for the job *RSPFPAR* such as the priority, client, job ID, user who scheduled and released the job, and the work process that executed the job.
 - a) In transaction SM37, double-click the job *RSPFPAR*.
 - b) Choose the *Job Details* pushbutton and a dialog appears with all the information you require.

Continued on next page

3. Take a look at the spool list for the job *ADM100-TIME-WIZ-##*.
 - a) In transaction SM37, select the job *ADM100-TIME-WIZ-##*.
 - b) Use the *Spool* pushbutton to go to the spool request that was generated.
 - c) Select the spool request and choose *Display Contents* (🔍). You should see a user overview similar to the output of transaction AL08.

Spool lists are only created for job steps that contain ABAP programs with output. They are only printed immediately if you have made the corresponding setting in the printer settings during the definition of the job step or in your user defaults.
4. Determine whether the job *ADM100-TIME-PURE-##* was delayed, and if so, the length of the delay.
 - a) Depending on the setting, you will already see a column headed *Delay* in SM37. After you have selected the job *ADM100-TIME-PURE-##* you can choose the *Job Log* pushbutton to display the progress of the job over time.

Delays could be due to busy background work processes or the fact that the time-dependent Job Scheduler runs periodically.
5. In SM37, why do you see the next job *ADM100-TIME-WIZ-##*, but not the next job *ADM100-TIME-PURE-##*?
 - a) With the default values, the job monitor SM37 displays **today's** jobs. If you adjust the selection accordingly, the next job *ADM100-TIME-PURE-##* (released for the following day) is displayed too.



Lesson Summary

You should now be able to:

- Schedule time-dependent jobs
- Schedule standard jobs

Related Information

- SAP Note 16083 - *Standard jobs, reorganization jobs*
- SAP Note 923228 - *Background job sched.: Using processes that have become free*

Lesson: Event-Based Scheduling of Jobs

Lesson Overview

In this lesson, you learn about event-based scheduling of jobs.



Lesson Objectives

After completing this lesson, you will be able to:

- Schedule event-dependent jobs
- Define and trigger events

Business Example

The administrator schedules background jobs and monitors the correct process of the system's background processing.

Event-Based Scheduling

An event is a signal to the background processing system that a particular status has been achieved in the SAP system. The background processing system receives events and then starts all jobs that are linked to this event.

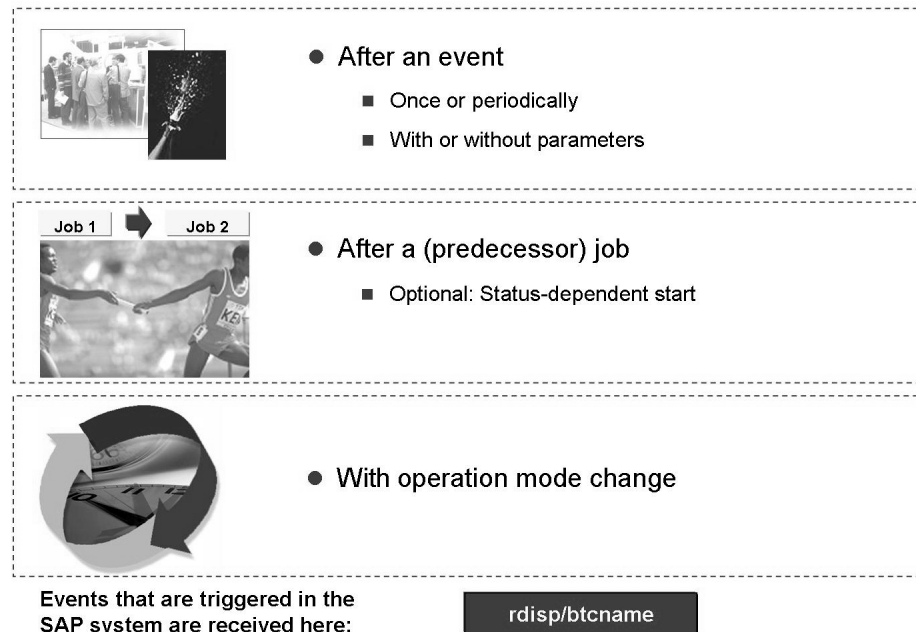


Figure 243: Event-Dependent Start of a Job

An application server is specified for the processing of events that are triggered within the SAP system in profile parameter `rdisp/btcname`. An event-dependent job scheduler is started on this server (unlike the time-dependent job scheduler, which runs periodically on all background servers). This scheduler checks whether a job is waiting for the event that has been received. It is therefore important that the parameter `rdisp/btcname` contains the name of an active background server (normally the central instance).

Event-dependent jobs can be scheduled with one of the following three start conditions:

After event

The job starts after a defined event is received by the SAP system.

At operation mode

With this option, you can link a job to the activation of an operation mode when scheduling the job.

After job

In this way, you can create simple job chains where the execution of the successor job can be made dependent on the status of the predecessor job.

Events

New events are defined by the system administrator in CCMS (transaction SM62). When doing so, the administrator differentiates between system events and user events. System events are events predefined by SAP that you should not modify or trigger.

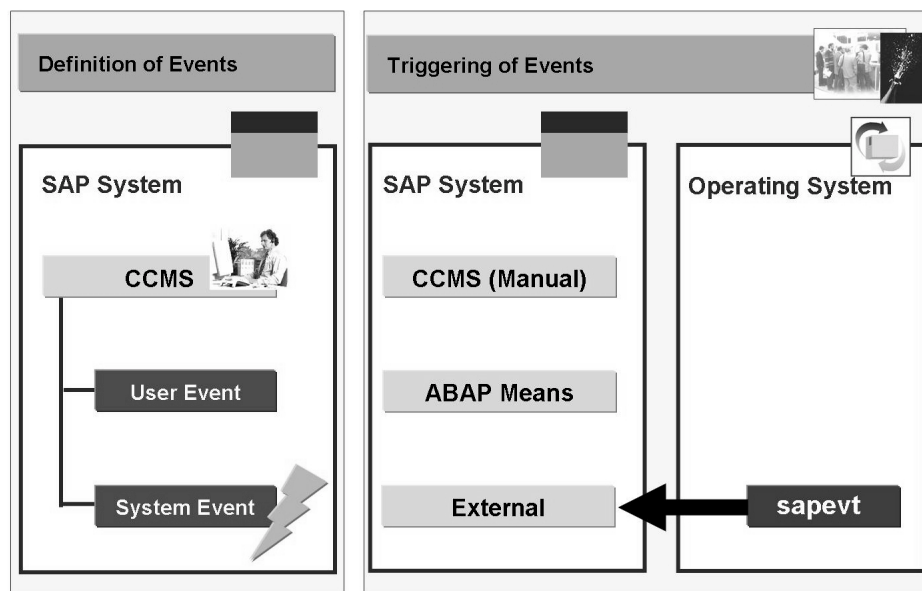


Figure 244: Definition and Triggering of Events

Events can be triggered in various ways:

- Manually in CCMS for test purposes (transaction SM64)
- Within an ABAP program (by using the function module `BP_EVENT_RAISE` or the `RAISE` method for the `CL_BATCH_EVENT` class)
- Outside the SAP system at operating system level using the program *sapevt*.

A parameter can also be transferred when an event is triggered. In this way, you can define jobs that wait for the occurrence of the event together with the specified parameter. You can access a history of events by way of the Event History (transaction SM62).

The syntax for the program *sapevt* is:

```
sapevt <parameters>
<Parameters> are multiple individual switches based on:
{<EventID> | event=<EventID>} [{-p <EventParam>} | param=<EventParam>]
[-t [0|1|2] [a]]
[-v]
```

```
{ [name=<SystemName>] [msserv=<MsServ>]  
  [mshost=<MsHost>] [pf=<Profile>] }  
{ [timeout=<TimeOut>] }  
[-? | /? | -help | /help]
```



Note: SAP Note 802172 explains the individual parameters in detail.

For example: **sapevt event=MEINEREIGNIS name=DEV**
mshost=twdf5000.wdf.sap.corp. The output of *sapevt* is written to a trace
file *dev_evt* in the current directory.

To be able to react to external events, the SAP system must be active. Otherwise an
event triggered by an external program is lost.

Exercise 24: Event-Dependent Jobs

Exercise Objectives

After completing this exercise, you will be able to:

- Schedule event-dependent jobs
- Define and trigger events

Business Example

The administrator schedules background jobs and monitors the correct process of the system's background processing.

Task 1: Check Profile Parameter

Check the setting for the event-controlled Job Scheduler.

1. Which instance is used to run the event-controlled Job Scheduler for internally triggered events in your system?

Result

You now know which instance is used when processing **internally** triggered events (a suitable instance is automatically determined for events that are triggered **externally**).

Task 2: Events and Event-Controlled Jobs

Create events and jobs that await the triggering of the respective event.

1. Create a customer event **EVENT_##**.
2. Copy the job *ADM100-TIME-PURE-##* you created in the previous exercise to **ADM100-EVENT-##**.



Note: If there is no job *ADM100-TIME-PURE-##* in your system, you can also copy a different job or create a new one.

3. Schedule the job *ADM100-EVENT-##* periodically to the event *EVENT_##*.
4. Trigger the event *EVENT_##* in a new session using CCMS tools and refresh the job overview.
5. Trigger the event *EVENT_##* at operating system level of your SAP system and refresh the job overview.

Continued on next page

Result

Congratulations! You can now create and trigger events to start scheduled jobs at them.

Solution 24: Event-Dependent Jobs

Task 1: Check Profile Parameter

Check the setting for the event-controlled Job Scheduler.

1. Which instance is used to run the event-controlled Job Scheduler for internally triggered events in your system?
 - a) Determine the value of the profile parameter *rdisp/btcname* (with either the transaction RZ11 or the report *RSPFPAR*).

Result

You now know which instance is used when processing **internally** triggered events (a suitable instance is automatically determined for events that are triggered **externally**).

Task 2: Events and Event-Controlled Jobs

Create events and jobs that await the triggering of the respective event.

1. Create a customer event **EVENT_##**.
 - a) Start transaction SM64.

Caution: Do not change any system events.
 - b) Choose *Create*.
 - c) Under *Event* enter **EVENT_##**, and under *Description* enter any text. Do not select the *System* checkbox and *save* the event.
2. Copy the job *ADM100-TIME-PURE-##* you created in the previous exercise to **ADM100-EVENT-##**.



Note: If there is no job *ADM100-TIME-PURE-##* in your system, you can also copy a different job or create a new one.

- a) Call the transaction SM37 and enter the relevant data to view the job *ADM100-TIME-PURE-##*.
- b) Select the job *ADM100-TIME-PURE-##* and choose *Job* → *Copy*.
- c) Enter **ADM100-EVENT-##** as the *new job name* and choose *Copy*.

Continued on next page

3. Schedule the job *ADM100-EVENT-##* periodically to the event *EVENT_##*.
 - a) Call the transaction SM37 and enter the relevant data to view the job *ADM100-EVENT-##* (display jobs with the status *Sched.*).
 - b) Select the job *ADM100-EVENT-##* and choose *Release*.
 - c) Choose the *After Event* pushbutton and select the event *EVENT_##*. Leave the *Parameter* field empty and select the *Periodic Job* checkbox. *Save* the release.
 - d) If the job *ADM100-EVENT-##* does not appear in the job overview after it has been released, you have to change the entries on the SM37 initial screen: In the Job Start Condition area under *or after event* select *EVENT_##* (alternatively *).
4. Trigger the event *EVENT_##* in a new session using CCMS tools and refresh the job overview.
 - a) Start the transaction SM64 and select your event *EVENT_##*.
 - b) Choose *Trigger*, leave the *Parameter* field empty, and choose *Trigger* again.
 - c) After you have *refreshed* the job overview, the job *ADM100-EVENT-##* should have run successfully and been rescheduled.

Continued on next page

5. Trigger the event *EVENT_##* at operating system level of your SAP system and refresh the job overview.
 - a) If you have not already done so, log on to your SAP system at operating system level.
 - b) Open a *Command Prompt* ("DOS box").
 - c) Execute the following command: **sapevt event=EVENT_## name=<SID> mshost=twdfXXXX.wdf.sap.corp**, where ## stands for your group number, <SID> for your system name (DEV or QAS) and XXXX for the server number (for example: **sapevt event=EVENT_00 name=DEV mshost=twdf0042.wdf.sap.corp**).
 - d) Take a look at the trace file *dev_evt* that was created in the current directory (either with SAPpad or the command **more dev_evt**). You will find the last (newest) entries at the end of this file.
 - e) After you have *refreshed* the job overview, the job *ADM100-EVENT-##* should have run successfully and been rescheduled.

Result

Congratulations! You can now create and trigger events to start scheduled jobs at them.



Lesson Summary

You should now be able to:

- Schedule event-dependent jobs
- Define and trigger events

Related Information

- SAP Note 802172: *sapevt* (Version 4): Release-independent version
- SAP Note 1021079: Event history

Lesson: Background Processing: Other Topics

Lesson Overview

In this lesson, you learn about other, special functions for background processing.



Lesson Objectives

After completing this lesson, you will be able to:

- Use additional, special functions of background processing

Business Example

You want to use the background processing resources more efficiently.

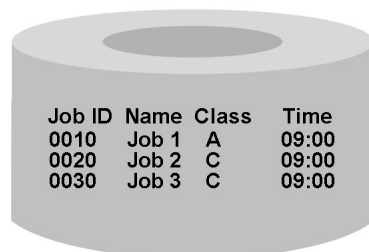
Reservation for Class A Jobs

In normal operation, every background work process processes jobs of every priority.

You can, however, reserve as many of the configured background work processes as desired for high priority jobs; that is, class A jobs. The reservation of work processes for class A jobs does not reserve any particular work processes. Rather it ensures that a particular number of work processes is always kept free. Jobs of job classes B and C can only be started if the defined number of work processes remains free for possible class A jobs.



Without Reservation



With Reservation

Maintenance of Operation Modes:
2 Background WPs, of which
1 is reserved for class "A"

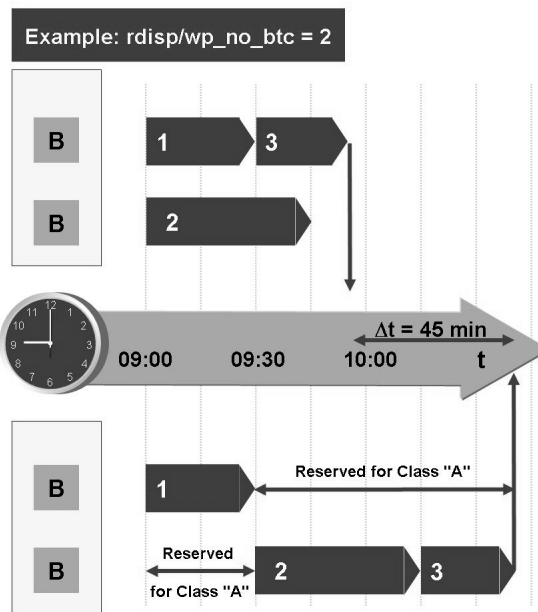


Figure 245: Reservation for Class A Jobs

To set the number of reserved background work processes for class A, you can define an operation mode in transaction RZ04 (maintenance of operation modes and instances) and maintain the work process allocation for this operation mode. When doing so, you have the option of reserving work processes.

If the class A workload is small, or bottlenecks rarely occur in background processing - in other words, at least one background work process is usually free - the reservation of a work process for class A jobs probably provides no advantages. In this case, reservation will simply mean that a work process is seldom used.

We recommend that you do not reserve more than one background work process for processing class "A" jobs for each instance. It is usually quite sufficient to reserve one background work process for processing class "A" jobs.

Execution Targets

Only instances with background work processes or a job server group can be used for the targeted scheduling of a background task.

A job server group contains one or more instances with available background work processes. Groups of this type can be used in the same way as logon groups for dialog users. It is also possible to process background tasks from different applications on selected instances.

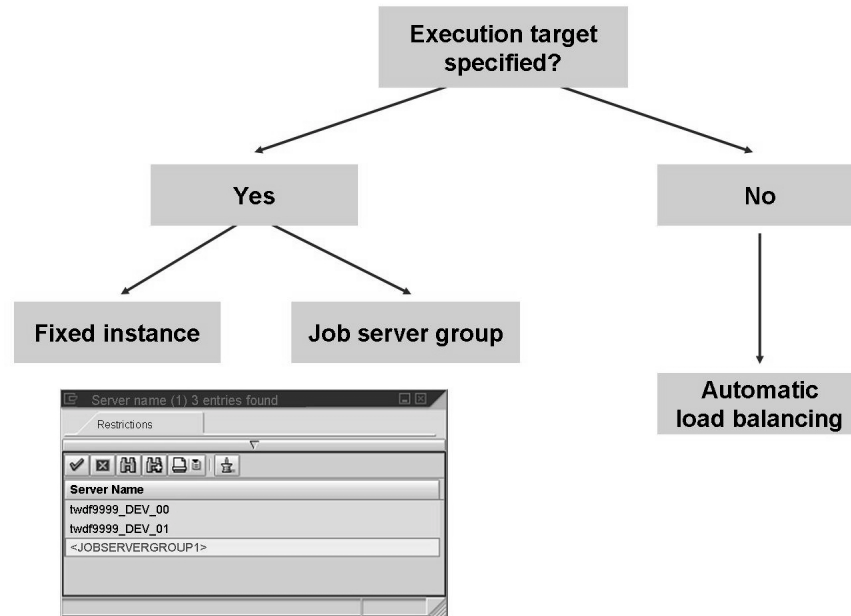


Figure 246: Execution Targets and Job Server Groups

You can set up a job server group in transaction SM61 (menu path: *Tools* → *CCMS* → *Background Processing* → *Background Objects*). To do this, call the transaction and then choose the *Job Server Groups*. You can then define your job server group and assign your instances.

Background Users

With the classic definition of jobs using transaction SM36, you can assign each step of the job to a user (see the figure). The specified user is used for the authorization checks during the execution of the step. By default, the name of the logged-on user appears in this field, and your job is performed using your authorizations. Enter a different user name, if your job should not be performed using your own authorizations. To be able to do this, you must, however, have the appropriate authorization (authorization S_BTCH_NAM) to enter names other than your own in the *User* field.



Figure 247: Background Users

It is useful to set up background users for various work areas that have the necessary authorizations for the required activities, and that can be used by users with the same authorizations to schedule background tasks in this work area (such as for system administration). Background users have user master records that are specifically intended for background processing authorizations.

Use the *System* user type when creating background users. A dialog logon with a user of this type is not possible. In the same way, users of this type are exempt from the usual settings for the validity period of a password. The password can only be changed by user administrators using transaction SU01 (*Users* → *Change Password*).

The name of the logged-on user is included in the authorization check for each step when defining a job using the Job Wizard.

Using External Programs

The background processing system differentiates between external commands for normal users and external programs for system administrators. The purpose of this differentiation is to give system administrators the ability to run any required external program, while normal users are restricted to external commands for which there are authorization checks. In both cases, the program `sapxpg` is called at operating system level and starts the relevant program at operating system level.

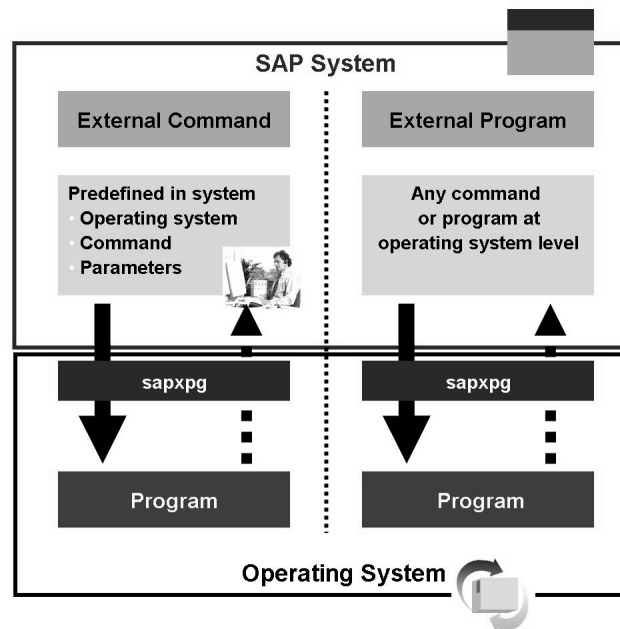
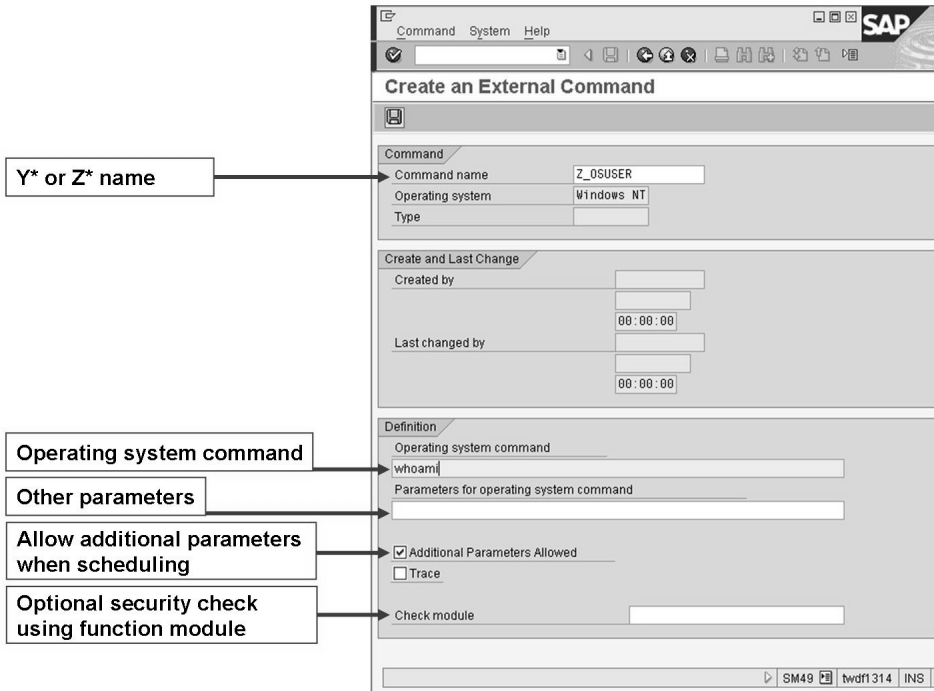



Figure 248: Using External Programs

External commands are host system commands or programs predefined in the SAP system by an administrator. They are protected by authorizations so that normal users can only schedule the commands for which the system administrator has assigned them the authorization. You can, therefore, provide functions outside the SAP system, at operating system level, for users of the SAP system.

External programs are unrestricted commands that are neither predefined nor restricted by authorizations. A user with administration authorization can enter any external program in a job step. No SAP authorization check is performed before the execution of the command. External programs provide an administrator (user with administration authorization for external commands (authorization object S_RZL_ADM: Background Processing: Background Administrator)) the flexibility to run any required host system command in the SAP system without administrative preparation.



The screenshot shows the 'Create an External Command' dialog box in SAP. The dialog is divided into several sections: 'Command', 'Create and Last Change', and 'Definition'. The 'Command' section contains fields for 'Command name' (Z_08USER), 'Operating system' (Windows NT), and 'Type'. The 'Create and Last Change' section contains fields for 'Created by', 'Last changed by', and time fields. The 'Definition' section contains fields for 'Operating system command' (whoami), 'Parameters for operating system command', a checkbox for 'Additional Parameters Allowed' (checked), a checkbox for 'Trace', and a 'Check module' field. Annotations with arrows point to specific fields: 'Y* or Z* name' points to 'Command name'; 'Operating system command' points to 'Operating system command'; 'Other parameters' points to 'Parameters for operating system command'; 'Allow additional parameters when scheduling' points to 'Additional Parameters Allowed'; and 'Optional security check using function module' points to 'Check module'.

Y* or Z* name

Operating system command

Other parameters

Allow additional parameters when scheduling

Optional security check using function module

Command name: Z_08USER

Operating system: Windows NT

Type:

Create and Last Change

Created by:

Last changed by:

Definition

Operating system command: whoami

Parameters for operating system command:

☒ Additional Parameters Allowed


☐ Trace

Check module:

SM49 twdf1314 INS

Figure 249: Definition and Use of External Commands

The creation of external commands requires the following steps:

1. Call the transaction SM69 (*Tools → CCMS → Configuration → Display/Change External Commands*).
2. Choose *Create*.
3. Make entries for the new command.
 - External commands are uniquely identified with a name (beginning with Y or Z) and an operating system type. The *Type* field fills automatically.
 - Specify an executable operating system command (if required with the complete path) and specify any additional required or optional parameters.
 - Select the *Additional Parameters Allowed* checkbox if users are allowed to specify additional parameters when they execute the external command later or schedule it in a background job. The additional parameters are added in parameter strings specified under *Parameters for Operating System Command*.
 - The *Trace* field should usually be left blank. To follow the execution of an external command, use the trace parameter for the function module *SXPG_COMMAND_EXECUTE*.
 - If you have defined an additional authorization check, enter the name of the function module that performs the check in the *Check Module* field. This is usually a customer copy of the function module *SXPG_DUMMY_COMMAND_CHECK*. The system calls the function module automatically if a user tries to execute the external command or schedule it in a background job.
4. Choose *Save*. To return to the command overview, choose *Back* (.

Control Flags

You can make specifications about the task and other runtime options using control flags. You do not normally need to change the default values.



Figure 250: Control Flags for External Programs/Commands

You can, for example, specify:

- Whether the process is to be logged. The output data is written to the log as it is output by the external program. The language can differ here from your logon language. You can also call additional information about the data of an external program in the job log.
- How the SAP control program should end and whether the external program triggers an event. After you have started service programs with the background processing system (such as daemons in UNIX systems), they remain active after the start. They are not ended and do not return to the SAP background processing system, as is the case with other programs. If you start a service program, you should not use the control flag setting *Job waiting for ext. termination* when scheduling the job.

You can display additional information about the meaning of the control flags using the F1 field help on the *Set Control Flags for External Programs* screen.

Extending the Standard System

The job scheduling options described in the previous lessons do not cover all possible requirements. You can implement more complex scenarios in the following ways:

The SAP system has various internal function modules that support you when defining your own job processes. These function modules are in the function groups *BTCH* and *BTC2*. You can define any complex scenarios with the help of these function modules.

SAP provides a set of interfaces that enable other system management environments to be connected to the SAP Computing Center Management System (CCMS):

- The eXternal Monitoring Interface API (XMI-API) interface logs the activities of external users and programs.
- The eXternal interface for Background Processing (XBP-API) interface allows the use of external job scheduling programs.

With these tools, you can schedule background jobs beyond the boundaries of the SAP system and include non-SAP systems.

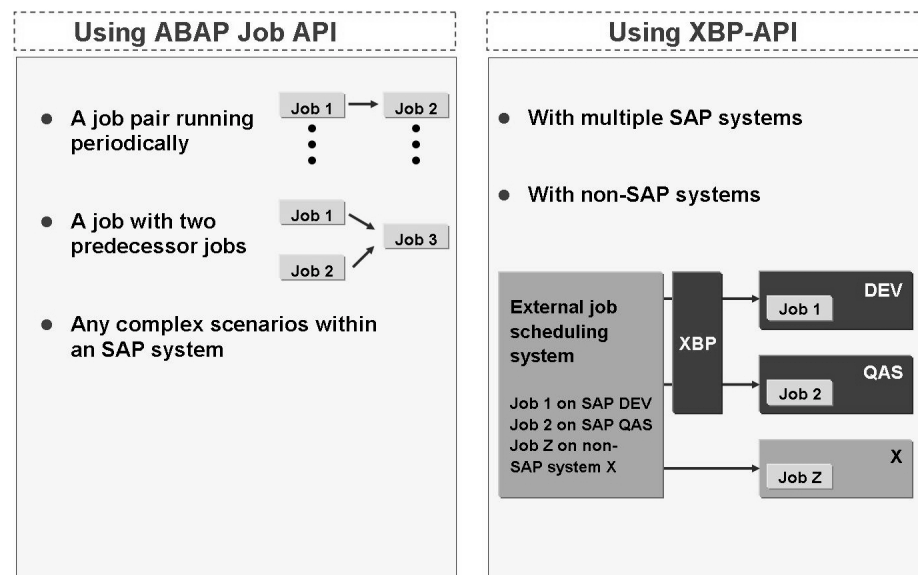


Figure 251: Extending the Standard System

For a list of certified solutions, see the the software category *Job Scheduling* in the Software Partner Directory.

Exercise 25: Other Topics in the Area of Background Processing

Exercise Objectives

After completing this exercise, you will be able to:

- Check whether background work processes for class A jobs have been reserved
- Create external commands
- Schedule external commands and external programs as jobs

Business Example

The administrator schedules background jobs and monitors the correct process of the system's background processing.

Task 1: Reservation for Class “A” Jobs

Check the current setting for reserving background work processes for class “A” jobs.

1. Find out if background work processes are reserved for class “A” jobs in your system.

Task 2: External Programs and External Commands

Create a job chain, external programs and external commands as a job step.

1. Use the transaction SM36 (without the wizard) to create a job with the following characteristics:

<i>Job Name</i>	ADM100-EXT-PROG-##
<i>Job Class</i>	<i>A</i>
<i>Target Server</i>	Leave empty
1. step	Program whoami
Start Condition	Event <i>EVENT_##</i>
Period	None

2. Create an external command **Z_OSUSER_##** that executes the operating system command **whoami**.

Continued on next page

3. Use the transaction SM36 (without the wizard) to create a job with the following characteristics:

<i>Job Name</i>	ADM100-EXT-CMD-##
<i>Job Class</i>	C
<i>Target Server</i>	Leave empty
1. step	Command Z_OSUSER_##
Start Condition	after job ADM100-EXT-PROG-##
Period	None

4. Trigger the event *EVENT_##* in a new session using CCMS tools and refresh the job overview.

Result

Congratulations! You can now create external commands and schedule external programs as job steps.

Solution 25: Other Topics in the Area of Background Processing

Task 1: Reservation for Class “A” Jobs

Check the current setting for reserving background work processes for class “A” jobs.

1. Find out if background work processes are reserved for class “A” jobs in your system.
 - a) You can only check whether you have defined background work processes for jobs of job class A using transaction RZ04 (Maintain Operation Modes and Instances). Choose *Instances/Operation Modes* there and check column *BPA*.

Task 2: External Programs and External Commands

Create a job chain, external programs and external commands as a job step.

1. Use the transaction SM36 (without the wizard) to create a job with the following characteristics:

<i>Job Name</i>	ADM100-EXT-PROG-##
<i>Job Class</i>	A
<i>Target Server</i>	Leave empty


Continued on next page

1. step	Program whoami
Start Condition	Event <i>EVENT_##</i>
Period	None

- a) Start transaction SM36.
- b) Under *Job Name* enter **ADM100-EXT-PROG-##**.
- c) For the *Job Class*, select *A*.
- d) Choose *Step*. Choose *External Program*. Enter the specifications for the step that are listed in the task and choose *Save*.



Note: You can analyze the *control flags* here – retain the default values.

Then choose *Back* (.

- e) Choose *Start Condition*. Choose *After Event* and select *EVENT_##*. Leave the *Parameter* field empty, do not select the *Periodic Job* checkbox, and choose *Save*.
 - f) Finally, on the initial screen for transaction SM36, choose *Save once*.
2. Create an external command **Z_OSUSER_##** that executes the operating system command **whoami**.
 - a) Start transaction SM69.
 - b) Choose *Create*.
 - c) Under *Command Name*, enter **Z_OSUSER_##**, and under *Operating System Command*, enter **whoami**. Do not change the other default values and *save* the command.

You could also go *back* to the overview and *execute* your command to test it.

3. Use the transaction SM36 (without the wizard) to create a job with the following characteristics:

<i>Job Name</i>	ADM100-EXT-CMD-##
<i>Job Class</i>	<i>C</i>
<i>Target Server</i>	Leave empty


Continued on next page

1. step	Command Z_OSUSER_##
Start Condition	after job ADM100-EXT-PROG-##
Period	None

- a) Start transaction SM36.
- b) Under *Job Name* enter **ADM100-EXT-CMD-##**.
- c) Choose *Step*. Select *External Command*. Make the entries for the step that are specified in the task. Under *Operating System*, select *Windows NT* and choose *Save*.



Note: You can analyze the *control flags* here – retain the default values.

Then choose *Back* (.

- d) Choose *Start Condition*. Choose *After Job* and under *Name*, enter **ADM100-EXT-PROG-##**. Then choose *Save*.
 - e) Finally, on the initial screen for transaction SM36, choose *Save once*.
4. Trigger the event *EVENT_##* in a new session using CCMS tools and refresh the job overview.
- a) Start the transaction SM64 and select your event *EVENT_##*.
 - b) Choose *Trigger*, leave the *Parameter* field empty, and choose *Trigger* again.
 - c) After you have *refreshed* the job overview the jobs *ADM100-EXT-PROG-##* and *ADM100-EXT-CMD-##* should each have run once successfully.

Result

Congratulations! You can now create external commands and schedule external programs as job steps.



Lesson Summary

You should now be able to:

- Use additional, special functions of background processing

Related Information

- SAP Note 24092: Distribution of background jobs on application server
- SAP Note 101146: Batch: Authorization object S_BTCH_JOB, S_BTCH_NAM



Unit Summary

You should now be able to:

- Describe the uses of background processing
- Schedule and monitor jobs
- Schedule time-dependent jobs
- Schedule standard jobs
- Schedule event-dependent jobs
- Define and trigger events
- Use additional, special functions of background processing



Test Your Knowledge

1. A background job contains one or more _____. An ABAP program or an _____ command or program can be executed in a _____ of this type. A job can be triggered at a particular _____ or when a defined _____ occurs.

Fill in the blanks to complete the sentence.

2. What status can a job have?

Choose the correct answer(s).

- ☐ A Running
- ☐ B Released
- ☐ C Waiting
- ☐ D Finished
- ☐ E Error
- ☐ F Active

3. Which of the listed options for time-dependent scheduling of a job can be implemented with the standard resources of the SAP system?

Choose the correct answer(s).

- ☐ A Daily at 1500
- ☐ B The second-last working day of every month
- ☐ C Every nine days, but not on Sundays
- ☐ D Only tomorrow at 2355
- ☐ E Every year on April 1 at 0800

4. Which of the listed options for event-dependent scheduling of a job can be implemented with the standard resources of the SAP system?

Choose the correct answer(s).

- ☐ A Whenever the system switches to the *Night* operation mode
- ☐ B After the job *Job1* has run successfully
- ☐ C Whenever a particular event has been triggered
- ☐ D Whenever the periodic job *Job2* has run successfully

5. If one of the system's ten background work processes is reserved for class A jobs, and jobs are being processed in the other nine work processes, the reserved work process remains free even if a class A job is waiting for execution.

Determine whether this statement is true or false.

- ☐ True
- ☐ False

6. If a user has authorization to schedule an external program as a step of a background job, he or she can run any operating system command.

Determine whether this statement is true or false.

- ☐ True
- ☐ False



Answers

1. A background job contains one or more steps. An ABAP program or an external command or program can be executed in a step of this type. A job can be triggered at a particular time or when a defined event occurs.

Answer: steps, external, step, time, event

After the job is triggered, it is processed without interruption by a single background work process.

2. What status can a job have?

Answer: B, D, F

In addition to the three correct answers, a job could have the status *Scheduled*, *Ready*, or *Canceled*.

3. Which of the listed options for time-dependent scheduling of a job can be implemented with the standard resources of the SAP system?

Answer: A, B, C, D, E

You can implement all the options mentioned with standard AS ABAP tools.

4. Which of the listed options for event-dependent scheduling of a job can be implemented with the standard resources of the SAP system?

Answer: A, B, C

Option D cannot be realized in the standard system. However, you can implement this as one of many additional possibilities by extending the standard system using function modules.

5. If one of the system's ten background work processes is reserved for class A jobs, and jobs are being processed in the other nine work processes, the reserved work process remains free even if a class A job is waiting for execution.

Answer: False

The work processes that are reserved for class A jobs process class A jobs. The option to reserve work processes for class A jobs should only prevent all work processes being occupied with class B or C jobs.

6. If a user has authorization to schedule an external program as a step of a background job, he or she can run any operating system command.

Answer: True

If you do not want, as an administrator, to assign this critical authorization, but want to enable your users to run a specific operating system command, you can define an external command in the SAP system.

Unit 12

Technical Aspects of External Communication

Unit Overview

The connection of external communication systems is important in many business processes.

This unit discusses the connection of different communication systems, such as fax or mail servers, to SAP systems using SAPconnect. First, the functions of SAPconnect will be discussed. The SAP system will then be configured for sending and receiving e-mails in SMTP format.



Unit Objectives

After completing this unit, you will be able to:

- Outline the function of SAPconnect
- Create a node for sending a remote mail to a different SAP system
- State the steps required to connect the SAP system to a mail server
- Configure the SAP system for connection to a mail server

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Lesson: Communication with SAPconnect

Lesson Overview

SAPconnect is a standard interface for external communication that enables data to be sent via telecommunication services, such as fax, text messages (pager/SMS), Internet e-mail, and X.400, as well as to printers and between different SAP systems. It allows you to connect external communication components to the SAP system.

In this lesson, you will learn the principles of SAPconnect.



Lesson Objectives

After completing this lesson, you will be able to:

- Outline the function of SAPconnect
- Create a node for sending a remote mail to a different SAP system

Business Example

As a member of the system administration team, you want to enable the connection of SAP systems to external communication services.

Overview of the Message Flow in SAP Systems

The SAP system offers application developers many ways in which to create and process messages. For example, there could be a need to automatically send a confirmation message to the sold-to party after the creation of a sales order.

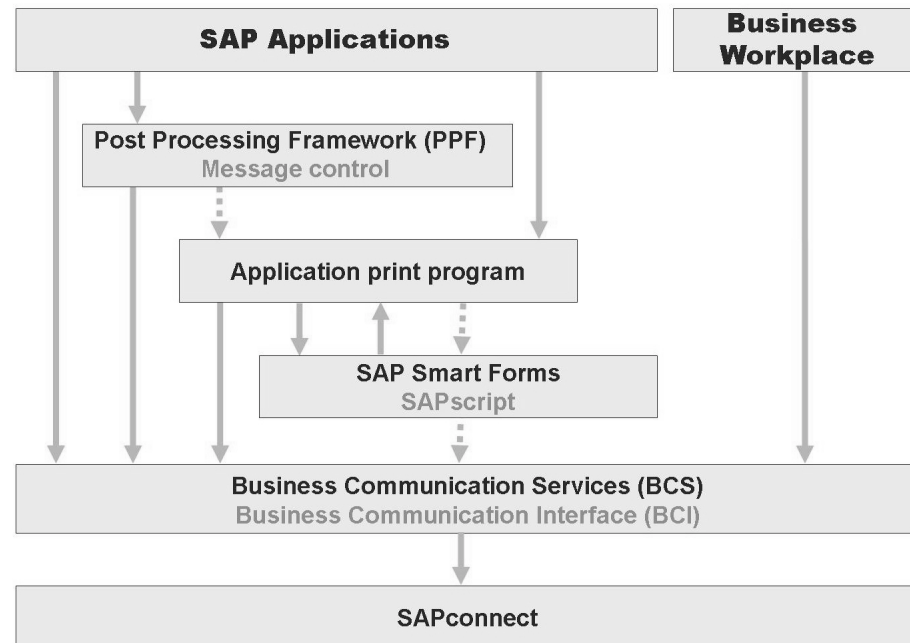


Figure 252: Message Flow in the SAP System

Business Communication Services (BCS) are of central importance in message processing. As of SAP Web AS 6.10, these services allow application developers to integrate sending messages internally and externally in their applications without any great effort. In addition to controlling sending and receiving, BCS takes on extensive status handling and makes available all information about the sending of an application object. Business Communication Services are the successor to the Business Communication Interface (BCI) and offer the advantage of an object-oriented interface.

The sending of messages from SAP applications can be performed directly using BCS. Alternatively, the Post Processing Framework (PPF) can also be addressed first. The PPF provides a uniform interface for generating actions in response to certain conditions (such as printing delivery notes, faxing order confirmations, or triggering approval processes). The PPF is the successor to message control and provides a greater range of functions, simpler connection to the applications, and greater flexibility than its predecessor. BCS (and its predecessor, BCI) can also be used from the tool for forms, SAP Smart Forms (and its predecessor, SAPscript).

In addition to automated message creation and processing, you can, of course, also create messages manually using the Business Workplace (previously known as SAP Office). The Business Workplace (transaction SBWP) provides a standard working environment in which every SAP user can perform his or her part of the business and communication processes in the company.

BCS forwards external messages to SAPconnect.

What Can SAPconnect Do?

SAPconnect is the central interface for external communication in SAP systems. SAPconnect supports the use of telecommunication services such as fax, text messages (pager/SMS), Internet e-mail, and X.400, as well as sending data to printers and between different SAP systems.

SAPconnect allows you to connect external communication components to the SAP system.

SAPconnect provides a direct connection to the Internet using the SMTP plug-in of the SAP NetWeaver Application Server. The SMTP plug-in for Internet e-mail is available as of SAP Web AS 6.10.

Communication possibilities with SAPconnect:

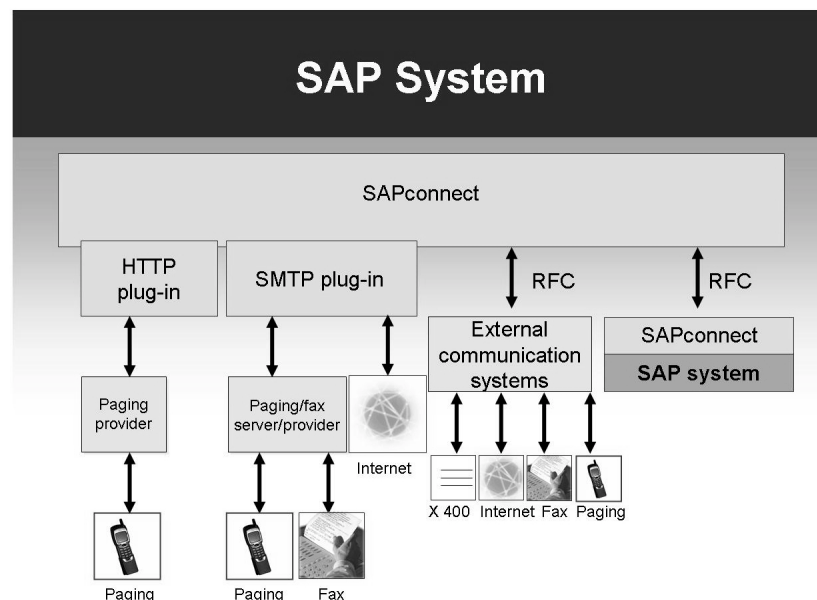


Figure 253: Communication Possibilities with SAPconnect

As you can see from the figure above, there are different ways of producing the same result (such as sending mail to the Internet). It has been possible to use external communication systems for many years; however, the use of plug-in technology requires the Internet Communication Manager (ICM) as well as at least SAP Web AS 6.10, and newer plug-ins may have even higher requirements (such as at least SAP Web AS 6.20).

SAPconnect: Transaction SCOT

Use transaction SCOT to configure SAPconnect. You can set up communication types here (such as fax, Internet e-mail, and so on) by creating and configuring communication nodes. You can use various views of the communication infrastructure in transaction SCOT. You usually start with the view *View* → *System status*.

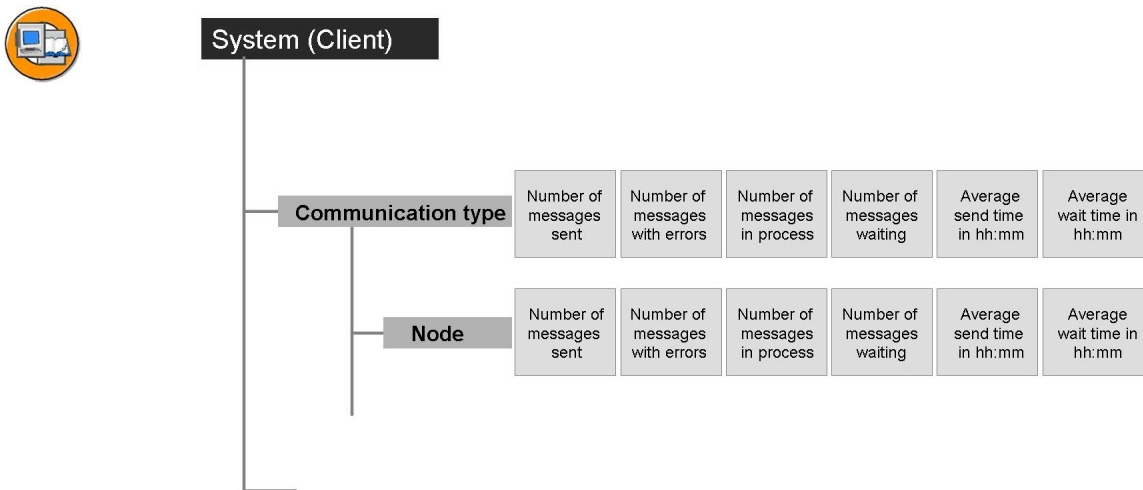


Figure 254: Transaction SCOT: The View of the System Status

To be able to send messages using a communication type, you must perform the following steps:

1. You have to activate the communication type (by choosing *Settings* → *Communication Methods*). SAPconnect is the communication method assigned by default for the communication type. Do not be confused: the only alternative to SAPconnect as the communication method here is *NONE*. This would explicitly deactivate a communication type.
2. You require at least one configured (communication) node for the communication type if you want to use it to send documents.
3. All programs that may be required must be available and configured.

Basic Process of Communication Using SAPconnect

The following list clarifies the process of a generic communication step in SAPconnect.



1. A message is created, for example as a WebFlow item, in the Business Workplace (transaction SBWP) or by an application.
2. The message is assigned to a node based on the selected communication type and address area stored in the queue.
3. The send process (report *RSCONN01* - should run periodically in the background) starts, reads the message from the queue, and transfers it to the SMTP plug-in or an RFC destination.



Note: You can easily schedule the send process periodically in transaction SCOT, by choosing *View* → *Jobs*.



Caution: SAPconnect must be set up **client dependent**. For example, the RML nodes that you use for communication between two SAP systems (via Remote Mail) use RFC connections that are valid system wide, but the nodes themselves are only known within a client.



Note: External communication systems log onto the SAP system as a system user. The authorizations for this user are contained in the profile *S_A.SCON*. The SAPconnect administrator requires the authorizations for the system user and the authorizations for table maintenance, which are checked using the authorization object *S_TABU_DIS*. These authorizations are contained in the roles *SAP_BC_SRV_COM_ADMIN* and *SAP_BC_SRV_GBT_ADMI*.

The figure below shows an example of a node configured for sending remote mail to an SAP system.

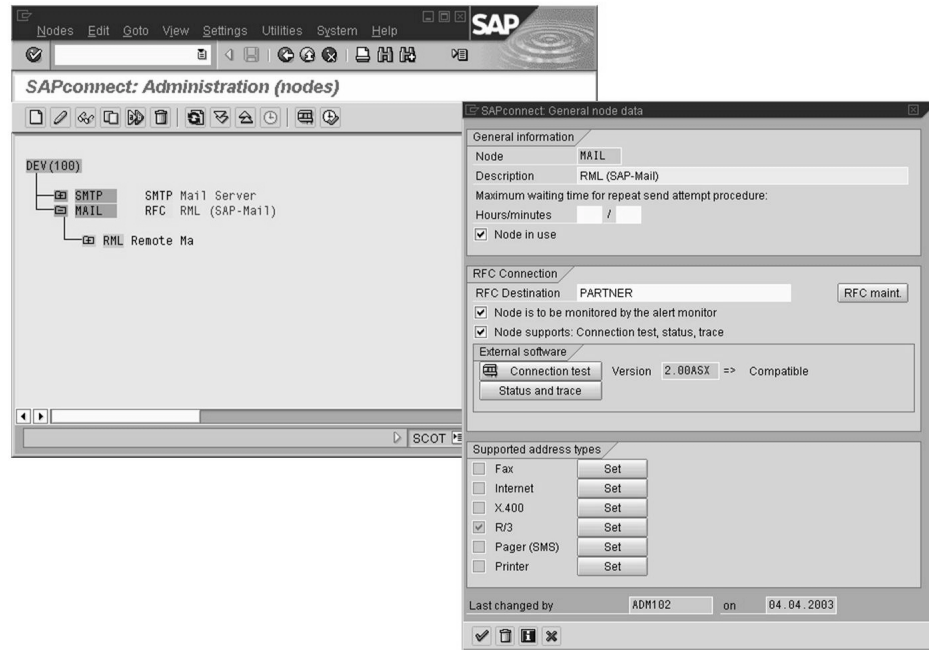


Figure 255: Setting up a Node for Remote Mail Sending



Example: Creating a Node for Sending Remote Mail to a Partner System

1. Start transaction SCOT.
2. Choose *View* → *System status*.
3. Choose *Create* (**Ctrl+F5**).
4. Enter a name for the node (for example, **RML**) and a description (for example, **Remote mail to partner system**).
5. Create an RFC node.
6. Specify the RFC connection **PARTNER** or another RFC connection that points to a client of another SAP system.
7. Choose the address type **R/3**.
8. Specify **<SID>:100:*** for the address type. **<SID>** = DEV or QAS (ID of your partner system).
9. Leave the conversion rules and the screen for restricting the send time on the default settings.
10. Do not set any additional address types.
11. Keep the default settings for failed send attempts.
12. The node is to be monitored by the alert monitor (initially, you may have to restart the data collection method in transaction SCOT by choosing *Utilities* → *Alert monitor* → *Start data collection method* so that the node is displayed in the alert monitor).
13. Declare the node in use and check the *Node supports: connection test, status, trace* checkbox. Perform the test.

Result

The **Remote Mail** node is ready to use.

Continued on next page

Test this node by following the procedure below:

1. Start transaction SBWP.
2. Choose *New Message*.
3. Enter a title and content for your mail, and specify the receiver as follows:
system_name:client:user. The system name corresponds to the SID of your partner system (in the setup for the ADM102 course; therefore QAS for the DEV groups and DEV for the QAS groups) and the client is the ID of the client in which the specified user exists, such as **QAS:100:ADM102-30**. Specify the recipient type as **R** (= remote mail address). Choose *Send...*
4. Start the send process for the address type **RML** in transaction SCOT.
5. Check that the mail has been received in the partner system using transaction SBWP.



Hint: To successfully send RML mails you require an RML address, which you have to maintain in transaction SU01 (choose *Other Communication...*). Refer to SAP Note 551847 - *User has no RML address*.

Troubleshooting

Various troubleshooting tools are available, some of which are mentioned as examples:

- For outbound messages, you can use routing tests (*Utilities → Routing test*) to check whether the error during the node determination was caused by the recipient address. This test checks whether routing for outgoing messages runs correctly in the communication environment. The test provides information on how the appropriate node is determined using the specified recipient address and whether fax and paging numbers are converted according to the rules for recipient number adjustment.
- A trace can be activated for incoming and/or outgoing messages (*Utilities → Trace → Internal trace*).
- The messages that are sent can be evaluated according to their current status (*Utilities → Overview of send orders*). For example, all documents with transmission errors can be displayed and resent. This report can be used to create overviews of the documents that have been sent in the current client. Overviews can be limited according to send times, communication methods, and send status. The entire send history of each document can also be called up. Overviews enable recipients to be notified and documents to be sent again.

Frequently Asked Questions

How do I configure SAPconnect in the context of system monitoring so that an auto-reaction (sending mail) runs correctly?

If an alert occurs in a system according to transaction RZ20, and a correctly set up auto-reaction method is assigned, the following happens:

1. The alert is marked red in transaction RZ20 shortly after it occurs.
2. This red alert must be recognized by the AutoABAP *SAPMSSY8*, which runs every five minutes. The AutoABAP then starts the assigned auto-reaction method.



Caution: Since *SAPMSSY8* is executed in client 000, SAPconnect must also be correctly configured in client 000.

3. After the auto-reaction method is active, there is a message that is ready to send in client 000. This message is sent the next time that report **RSCONN01** runs. That is, the send process must be scheduled periodically.



Caution: Documents are only sent correctly if the send user (which is declared in the auto-reaction method) is assigned a mail address in client 000.

For more information, see SAP Note 176492 - *Automatic email when an alert occurs (RZ20)*.

How can I connect Microsoft Exchange Server to my SAP systems?

The SAP Exchange Connector connects the MS Exchange Server to the SAPconnect mail interface. However, the SAP Exchange Connector is no longer delivered by SAP. Instead, it has been replaced by the SMTP plug-in. See also SAP Note 122657 - *SXC: Version overview and history*.



Lesson Summary

You should now be able to:

- Outline the function of SAPconnect
- Create a node for sending a remote mail to a different SAP system

Related Information

For more information about SAPconnect and its use, see the following areas in the online documentation for SAP NetWeaver '04 and in the SAP Notes listed:

- Online documentation for SAP NetWeaver 7.0: Choose *SAP Library* → *SAP NetWeaver Library* → *SAP NetWeaver by Key Capability* → *Application Platform by Key Capability* → *Business Services* → *Business Communication Services* → *Generic Business Tools for Application Developers (BC-SRV-GBT)*.
- Online documentation about SAP NetWeaver 7.0, area *SAPconnect (BC-SRV-COM)* (find, for example, by searching online documentation). In the *Administration* → *Inbound Distribution* area, you can also find information about distributing incoming mails.
- SAP Note 455127: *E-mail (SMTP) in different SAP releases*
- SAP Note 17194: *Telefax in various SAP Releases*
- SAP Note 455129: *Paging/SMS in different SAP releases*
- SAP Note 312690: *SAPconnect: Collective note*
- SAP Note 455140: *Configuration of e-mail, fax, paging or SMS using SMTP*
- SAP Note 455142: *SAPconnect: Configuration paging/SMS via HTTP*
- SAP Note 598718: *SAPconnect - Performance*

Lesson: Communication Using SMTP

Lesson Overview

Connecting an SAP system to a mail server has become significantly easier due to the SMTP plug-in available as of SAP Web AS 6.10. This lesson provides you with an overview of configuring the SAP system for SMTP. We will discuss both sending and receiving e-mails.



Lesson Objectives

After completing this lesson, you will be able to:

- State the steps required to connect the SAP system to a mail server
- Configure the SAP system for connection to a mail server

Business Example

Your company uses SAP systems based on Application Server ABAP (AS ABAP). As a member of the system administration team, it is your task to implement the exchange of e-mails between an SAP system and an SMTP-compatible mail server without external components.

Introduction to Communication Using SMTP

As of SAP Web AS 6.10, SMTP (Simple Mail Transfer Protocol) is supported directly by the SAP (ABAP) kernel. This means that it is possible to exchange e-mails between the SAP system and any SMTP-compatible mail server without using additional external components (such as connectors or gateways). You can use any product that meets the SMTP standard as a mail server.

The following figure shows a simplified e-mail system landscape for a company. If an e-mail is sent to the address `info@sap.com`, it first reaches a Mail Transfer Agent (MTA). This is a program (such as *sendmail*) that is responsible for forwarding and delivering e-mails: When a mail is received from a Mail User Agent (MUA) (the actual e-mail program) or a different MTA, the MTA analyzes the mail and either sends it to the local user (that is, his or her MUA) or forwards it to a different MTA (if alias rules have been defined, for example). In the example shown here, the inbound e-mail is forwarded to the SAP CRM system with the local domain `crm.sap.com`.

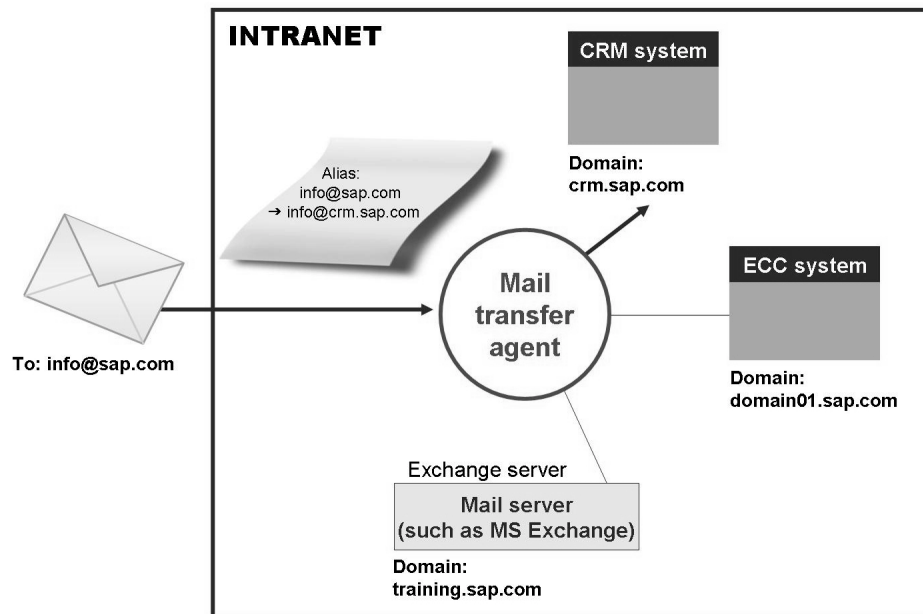


Figure 256: Task of a Mail Transfer Agent (MTA)

As of SAP Web AS 6.20, faxes and text messages (pager/SMS) can also be exchanged using SMTP. Faxes and text messages are packed into e-mails for this purpose. For receipt, the fax/text message server or provider sends e-mails to addresses with the SAP system domain (such as to FAX=+1212541234@crm-prod.company.com).

Restrictions of the AS ABAP with Regard to Sending and Receiving SMTP Mails


In the **outbound direction**, the SAP system always transfers the mails to **one single** mail server. You can set the host address and port number of this mail server. The technical background of this is that an SMTP node can have only one target connection. In order to send e-mails to different domains, the AS ABAP therefore always requires a different Mail Transfer Agents (MTA).

The Application Server ABAP (AS ABAP) can receive e-mails through SMTP and redistribute these e-mails to Business Workplace (previously: SAP Office) users. In the **inbound direction**, the SAP system can receive mails from **any number** of mail servers. Each client can be reached by a separate virtual mail server (host name, port number) that is configured in transaction SICF. The best way to address the SAP system and its clients is to use a separate subdomain for each client (such as training.sap.com). These subdomains are assigned to host names and port numbers

using routing rules on the mail servers. The following restriction applies: The AS ABAP cannot be an MTA itself, that is, it cannot forward the mails to other mail servers.

Configuring the SAP System for SMTP

If you want to use the SMTP function, you have to customize the following profile parameters for the AS ABAP.

 **Note:** The following restriction applies: The SAPconnect send job can only be scheduled for servers on which SMTP is activated. You should therefore activate SMTP on all application servers of the SAP system.

- *rdisp/start_icman = true*

This parameter starts the ICM process automatically during the system startup.

- *exe/icman = <path for the executable of the ICM>*
- *icm/server_port_<*> = PROT=SMTP,PORT=<port>*

This parameter opens a TCP/IP port for receiving mails using the SMTP plug-in. *<port>* describes the port number. If no mails are to be received in this SAP system, set *<port>* to zero.



Hint: The parameter *is/SMTP/virt_host_<*>* defines a virtual mail host for receiving mails. If all inbound mails (including status notifications) are to be received and processed in a single client of the SAP system, this parameter is not required and *is/SMTP/virt_host_0 = *.*;* is taken as the default. If multiple clients are intended as receivers, you must create a virtual host for each client.

To avoid performance bottlenecks due to high numbers of SMTP requests (or, optionally, HTTP/S), you can use parameters to restrict the context usage in the backend SAP system for a protocol. You specify the percentage of all available contexts that can be used for the relevant protocol. In the SAP system, the maximum number of contexts in the system is limited by the profile parameter value of *rdisp/tm_max_no* (this parameter restricts the maximum number of users per instance). If the following quotas are exceeded, the requests are rejected in the ICM.

- *icm/HTTP(S)/context_quota*
- *icm/SMTP/context_quota*

For example, with the setting *icm/SMTP/context_quota = 20*, you specify that only 20 percent of the available contexts can be used for SMTP (mail functions). This means that you have more capacity for HTTP(S) requests if there is a high workload.

Sending E-Mails from an SAP System

E-mails are created either automatically using an application or manually in the SAP mail client (Business Workplace, transaction SBWP), and are sent to a mail server by SMTP. These e-mails can now also be displayed with a suitable mail client for this mail server, as shown in the following figure.

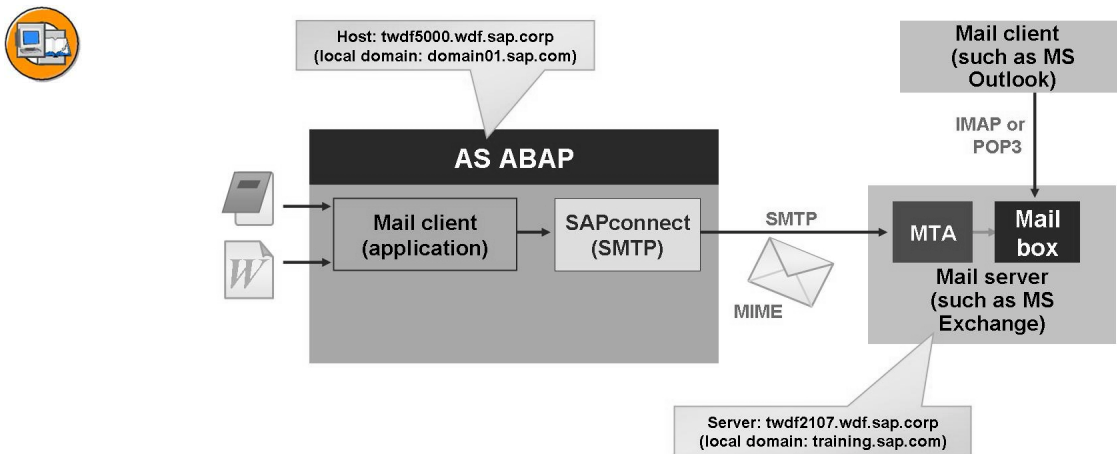


Figure 257: Outbound Mails: Process

Note: Short explanations of the abbreviations used in the figure:

- **POP** is the abbreviation for Post Office Protocol. POP was defined in 1984 in connection with TCP/IP and allows the receipt of e-mails even on systems that cannot guarantee permanent connection to the mail server. POP3 is, therefore, together with SMTP (for sending messages), the standard protocol for most mail clients in the Internet. The POP3 protocol can delete messages on the server or leave them there, and can delete messages directly without first transferring them from the server. If more is required, such as hierarchical mailboxes, or filters, you should use the functions of the client; the protocol does not provide anything of this sort -- you may have to use IMAP.
- **IMAP** : is the abbreviation for Internet Message Access Protocol. This is an e-mail protocol that allows the client to process mails on the server. You can also create folders on the mail server (remote mailboxes) to sort mails. IMAP was developed to transfer messages only when required: The user can choose (unlike with POP3) which data he or she actually wants to transfer to his or her own computer.
- **SMTP**: This is the abbreviation for Simple Mail Transfer Protocol. SMTP is the standard for exchanging e-mails between servers in the network. Mail clients use SMTP to send e-mails to a server, but not to receive e-mails.
- **MIME**: This is the abbreviation for Multipurpose Internet Mail Extensions . It consists of Internet extensions (coding procedures) for including binary data in Internet mails. In addition, MIME supports multipart mails to allow different data types in a mail or binary attachments, and mails in HTML format.

Follow the procedure below to configure a send process for SMTP:

1. As described in the section *Configuring the SAP System for SMTP*, the key **profile parameters for SMTP** must be maintained.
2. Maintain the **user addresses**, as every user that wants to send e-mails requires an Internet e-mail address. This is used as the sender address. You can use transaction SU01 to enter the Internet address under *E-Mail* on the *Address*

tab page. For security reasons, if a user is maintaining his or her own data (transaction SU3), he or she cannot maintain the entries for the communication types *E-mail* (INT or SMTP) and *Remote Mail* (RML).



Note: You can use report RSADRCK7 to create e-mail addresses of type <User-ID>@<DomainName> automatically for all (SU01) users in your client. This report is described in more detail in SAP Note 104263.

3. In transaction SCOT, define the **domain** of the SAP system client under *Settings* → *Default Domain*. You need to do this for the following reasons:

- The SMTP plug-in logs onto the mail server with the domain as an ID.
- The message ID of the outbound e-mails is compiled using this domain.
- If an SAP user sends an e-mail without an Internet e-mail address, a sender address consisting of the SAP user name and this domain is generated.



Note: You must make SAPconnect settings in transaction SCOT for every client that is used for the send process.

4. Every client has an SMTP node. This node is created by the SAP system and cannot be deleted. The following steps are required to **configure the SMTP node** to send an Internet mail:

- Set the node so that it is in use.
- In the *Mail Host* and *Mail Port* fields, specify the mail server to which the outbound mails are to be transferred.
- If you want to use a Multi-Display, Multi-Processing (MDMP) or Unicode system, enter **4110 Unicode UTF-8** in the *Code Page* field.



Note: For more information about mails to and from SAP systems with several code pages, see SAP Notes 633265 and 664833.

- When you configure the node, enter the address range of recipient addresses that can be reached via this node (such as *, if this node is to process all SMTP mails).
 - Enter the output formats for SAP documents, such as PDF for SAPscript/Smart Forms, HTM for ABAP lists, and business objects/links and TXT for RAW text.
5. It is also useful to schedule a **send job**, as e-mails sent from an SAP application are initially placed in a wait queue. A background job that runs periodically, the SAPconnect **send job**, collects e-mails from the wait queue and sends them to

the mail server. In the *Jobs* view in transaction SCOT, create a background job, for example with the variant *SAP&CONNECTALL*, and schedule it to run periodically (with a period value of, for example, 10 minutes).



Hint: Make sure that you schedule the job in an instance in which an ICM process is also configured and active.

You can also configure the node for sending faxes or text messages in the same way.

The figure below shows a configured SMTP node in transaction SCOT.

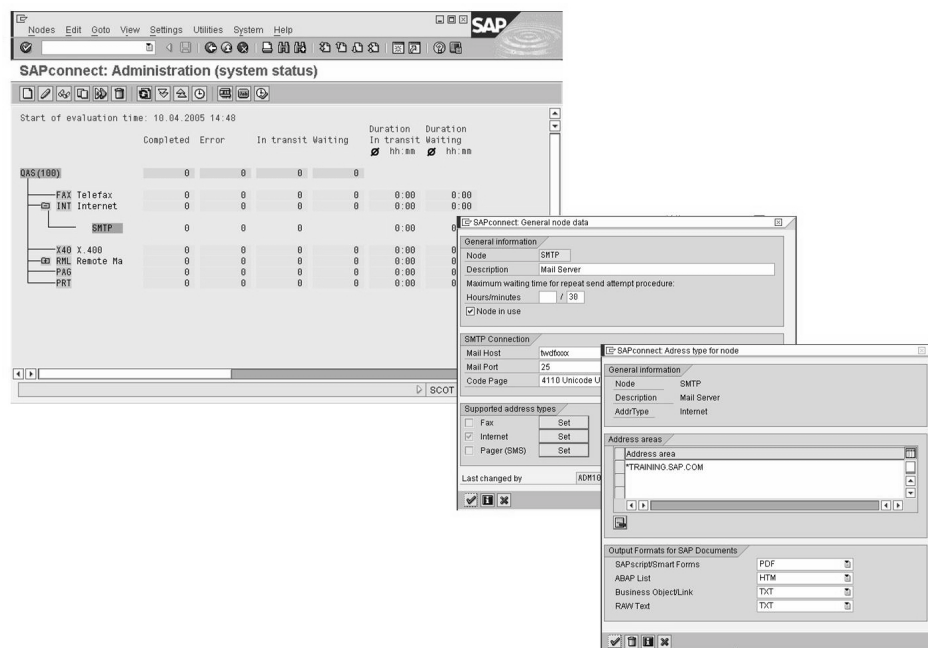


Figure 258: Configuring an SMTP Node

Receiving E-Mails in an SAP System

When you send an e-mail from a mail client to a user in an SAP system, the e-mail is first forwarded to a mail server and then forwarded to the SAP system by the MTA. The e-mails are sent to the mail client in the SAP system (Business Workplace) on a client-dependent basis using SAPconnect. This is illustrated by the following figure.

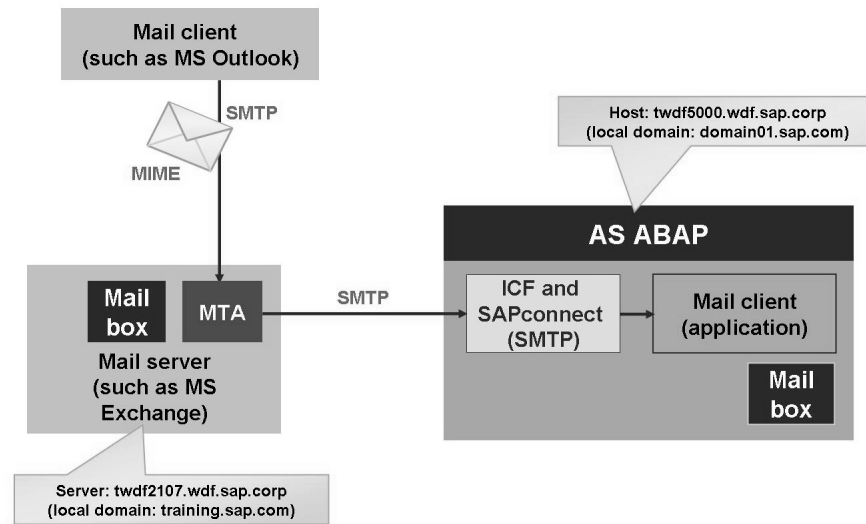


Figure 259: Incoming Mails: Process

Follow the procedure below to configure a receive process for SMTP:

1. As described in the section *Configuring the SAP System for SMTP*, the key profile parameters for SMTP must be maintained.
2. In each client, a user is also required for processing inbound mails. Use transaction SU01 to create a **system user** with the profile S_A.SCON.
3. You have to maintain an **Internet mail address** for every user that is to receive e-mails in an SAP system. This is also used as the sender address. Enter the Internet mail address in transaction SU01 on the *Address* tab page under *E-Mail*. For security reasons, if a user is maintaining his or her own data (transaction SU3), he or she cannot maintain the entries for the communication types *E-mail* (INT or SMTP) and *Remote Mail* (RML).
4. In transaction SCOT, define the **domain** of the SAP system client under *Settings* → *Default Domain*.
5. For every client of an SAP system in which inbound mails (or status notifications for sent mails) are to be received and possibly processed, you must **create an SMTP server** for which an assignment to a virtual mail host and logon data are stored. In transaction SICF, there is already an SMTP server for every SAP system that is shipped by SAP. Use this for the first client that you want to be able to receive mails, and create a new SMTP server for each additional client. If you are working with multiple clients, you must create a virtual host for each client in which messages are received using the SMTP plug-in. Make the following settings in transaction SICF by double-clicking the *SAPconnect* menu entry (see also SAP Note 546147):

- On the *Host Data* tab page, maintain the parameter `is/SMTP/virt_host_<*>= <host>:<port>,<port>,...`;
This parameter defines a virtual mail host for receiving mails. If all inbound mails (including status notifications) are to be received and processed by a single client in the SAP system, this parameter is not required. In this case, `is/SMTP/virt_host_0= <*>:<*>` is used as the default. If multiple clients are intended as receivers, you must create a virtual host for each client. `<host>` and `<port>` describe the name of the host and the port to which inbound mails are addressed.
- On the *Logon Data* tab page, enter the client to which the mails received by the virtual mail host are to be forwarded and maintain the logon data of the system user that was created in this client for the inbound mails.
- On the *Handler List* tab page, add (if it does not already exist) **CL SMTP_EXT_SAPCONNECT** at position 1.



Note: As of SAP Web AS 6.20, every SMTP server must be activated (in transaction SICF under *Service/Virtual Host* → *Activate* or by clicking the right mouse button and using the context menu) after it has been created or changed.

The steps required to configure the mail connection in the SAP system are summarized again in the figure below.



	Transaction	Outgoing Mails	Incoming Mails
Maintain parameters for SMTP*	RZ10	✓	✓
Maintain user address	SU01	✓	✓
Maintain default domain	SCOT	✓	✓
Configure and activate SMTP node	SCOT	✓	
Schedule the send job	SCOT	✓	
Create system users	SU01		✓
Maintain and activate SAPconnect node	SICF		✓

* Includes `rdisp/start_icman` = true
`exe/icman` = <path for the ICM executable>
`icm/server_port_<*>` = PROT=SMTP,PORT=<port>

Figure 260: Configuring the Mail Connection via SMTP

Exercise 26: Sending and Receiving E-Mails by SMTP with AS ABAP

Exercise Objectives

After completing this exercise, you will be able to:

- Configure the SMTP plug-in of the AS ABAP
- Send e-mails from an SAP system using SMTP
- Receive e-mails in an SAP system using SMTP

Business Example

As a member of the system administration team, you want to implement the exchange of e-mails between an SAP system and an SMTP-compatible mail server without external components.

Task 1: Setting Up the External Mail Client

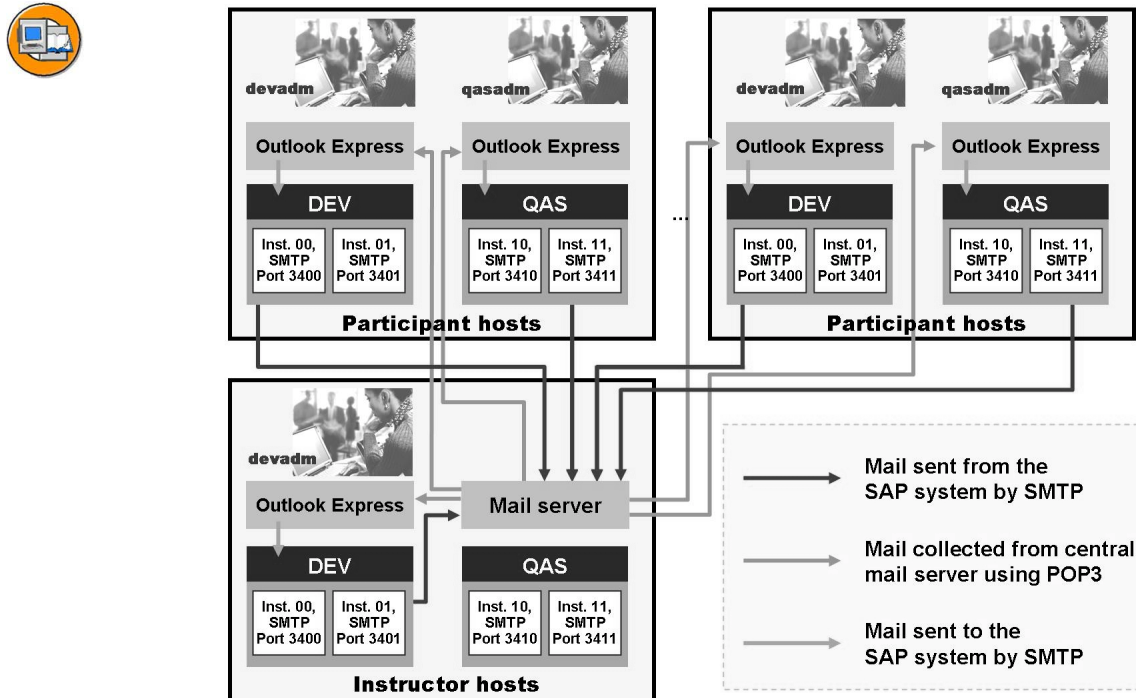


Figure 261: Complete Scenario of the Training Landscape

Set up Microsoft Outlook Express to receive e-mails with the e-mail recipient (prepared for each exercise group).

➔ **Note:** Microsoft Outlook Express is used here as an example. The user interfaces and functions of other mail clients are different; however, the basic concepts and required entries are identical.

1. Start Microsoft Outlook Express at the operating-system level of your server (not locally in the training room).
2. Set up a mail account with the following details:

Continued on next page

<i>Display name</i>	any (such as your “real” name)
<i>Existing e-mail address</i>	ADM102-##@training.sap.com
<i>Incoming mail (POP3) server</i>	The name of the host on which your instructor set up the external mail server (such as twdf0042)
<i>Outgoing mail (SMTP) server</i>	The name of the host on which your SAP system is running (such as twdf0044)
<i>Account name</i>	ADM102-##
<i>Password</i>	email## (activate <i>Remember password</i>)



Note: The entries for *Display name* and *Outgoing mail server* are only of importance when sending e-mail from Microsoft Outlook Express.

3. Test whether you can **receive** e-mails from the external mail server with your mail account.

Result

You can collect e-mails for your e-mail recipient, ADM102-##, from the shared mail server.

Task 2: Check the SMTP Configuration of Your SAP System

Check whether your SAP system has been configured for SMTP. If this is not the case, configure your SAP system accordingly.

1. For each of your application servers, determine the port at which requests in the SMTP protocol are processed.
2. If your SAP system has not yet been configured for SMTP, use transaction RZ10 to add the parameter **icm/server_port_1** for your default profile and assign it the value **PROT=SMTP, PORT=34\$\$**. Save and activate the profile and then restart all the ICM processes of your system in transaction SMICM. Then repeat the first step of the task.

Continued on next page

Task 3: Setting Up the Sending of E-Mails in the SAP System

Generate Internet addresses, set the default domain and receipt confirmation, and configure the SMTP node.

1. Assign all users in your client the Internet address **<UserID>@domain##.sap.com**, where **##** is your (two-digit) group number.
Then check the changes using user **ADM102-##**.
2. In your SAP system, enter **domain##.sap.com** as the default domain.
3. Configure SAPconnect so that no confirmation of receipt is expected for Internet mails.
4. Set up the SMTP node in your SAP system so that e-mails addressed to recipients in the domain **training.sap.com** can be sent to the external mail server (set up by your instructor).



Hint: If the external mail server also operates as a Mail Transfer Agent (MTA), you could also use enter * as the SAPconnect domain. However, in the training landscape, the mail server does not forward any e-mails, but rather processes only the specified domain.

Result

Your SMTP node is now ready for use and is responsible for all e-mails sent to the specified address range. It is this easy to connect to an SMTP-compatible mail server.

Task 4: Sending an E-Mail from an SAP System

Create an e-mail and start the send process.

1. Create an e-mail to the recipient **ADM102-##@training.sap.com** in the SAP system, for which no confirmation of receipt is to be requested.
2. Start the send process manually.
3. Display the e-mails sent to the user **ADM102-##@training.sap.com** in Microsoft Outlook Express.
4. **Optional:** Schedule the send process for Internet mails periodically (every five minutes). Then send a list output (such as report *SHOWCOLO*) to recipient **ADM102-##@training.sap.com** and observe how the output is sent during the next send process.

Continued on next page

Result

Congratulations on successfully connecting your SAP system to a mail server.

Task 5: Optional: Receiving E-Mails in the SAP System

Set up Microsoft Outlook Express to send e-mails, and set up the SAP system to receive e-mails.

1. In your SAP system, create a user, **MAILDISP**, to distribute e-mails in the current client. This user should be of the type *System* and you should assign the authorization profile **S_A.SCON** shipped by SAP.
2. Enter the user that you have just created in the virtual host for *SAPconnect* (transaction SICF). Remember to activate the virtual host after changing it.
3. Start Microsoft Outlook Express on your server (as user **<sid>adm**). Check that the *Outgoing mail (SMTP) server* setting for your mail account points to the name of the host on which your SAP system is running (such as **twdf0044**).

Important: Enter a valid port for your SAP system as the port for outbound e-mails (SMTP) (we suggest the port for the central instance). You determined the port information in task 2.

4. Use Microsoft Outlook Express to send an e-mail to **ADM102-##@domain##.sap.com** and check its arrival in the SAP system.

Result

You are now able to connect SMTP for an SAP system in both directions.

We wish you every success in implementing this in your company.

Solution 26: Sending and Receiving E-Mails by SMTP with AS ABAP

Task 1: Setting Up the External Mail Client

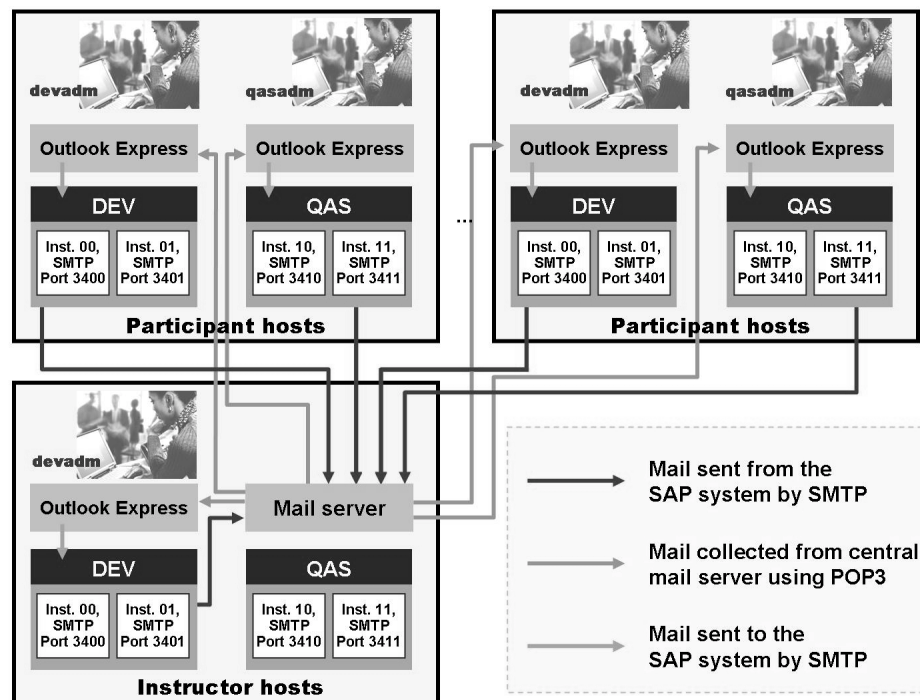


Figure 262: Complete Scenario of the Training Landscape

Set up Microsoft Outlook Express to receive e-mails with the e-mail recipient (prepared for each exercise group).

➡ **Note:** Microsoft Outlook Express is used here as an example. The user interfaces and functions of other mail clients are different; however, the basic concepts and required entries are identical.

1. Start Microsoft Outlook Express at the operating-system level of your server (not locally in the training room).
 - a) If you have not already done so, log on to the Terminal Server Client (also known as the RDP Client) at operating-system level using the user `<sid>adm`.

Continued on next page

- b) Choose *Start* → *Programs* → *Outlook Express*.
2. Set up a mail account with the following details:

<i>Display name</i>	any (such as your “real” name)
<i>Existing e-mail address</i>	ADM102-##@training.sap.com
<i>Incoming mail (POP3) server</i>	The name of the host on which your instructor set up the external mail server (such as twdf0042)
<i>Outgoing mail (SMTP) server</i>	The name of the host on which your SAP system is running (such as twdf0044)
<i>Account name</i>	ADM102-##
<i>Password</i>	email## (activate <i>Remember password</i>)



Note: The entries for *Display name* and *Outgoing mail server* are only of importance when sending e-mail from Microsoft Outlook Express.

- a) When you first open it, Microsoft Outlook Express immediately starts a Wizard to create a mail account. Once you have launched Microsoft Outlook Express, you can enter the required information by choosing *Tools* → *Accounts...* → *Add* → *Mail*.
- b) Fill the fields as described above and leave all other fields unchanged. Choose *Next* to move to the next screen.
3. Test whether you can **receive** e-mails from the external mail server with your mail account.
- a) In Outlook Express, run the function *Send and Receive All* (by choosing the button or by choosing *Tools* → *Send and Receive* → *Send and Receive All*). Although there is not yet any e-mail for you on the external mail server, this should work without any error messages.



Note: Microsoft Outlook Express creates the welcome e-mail “Welcome to Outlook Express...” itself; it does not come from the mail server.

Result

You can collect e-mails for your e-mail recipient, ADM102-##, from the shared mail server.

Continued on next page

Task 2: Check the SMTP Configuration of Your SAP System

Check whether your SAP system has been configured for SMTP. If this is not the case, configure your SAP system accordingly.

1. For each of your application servers, determine the port at which requests in the SMTP protocol are processed.
 - a) There are a number of ways to determine the port responsible for SMTP. The simplest method is to call transaction SMICM and choose *Services*.

You can see the number under which the SMTP service is running in the system in the first column (it is represented here by *xx*). The associated profile parameter is called *icm/server_port_<xx>*. You can also find the value of this parameter, for example:
 - In transaction SMICM, by choosing *Goto* → *Parameters* → *Display*
 - By calling report **RSPFPAR**
 - In Profile Maintenance (transaction RZ10)
 - b) Note that the port determined in this way (such as 3411) applies only for the application server to which you are currently logged on. Log onto the second ABAP instance (possibly using transaction SM51) to determine the port set there.

Continued on next page

2. If your SAP system has not yet been configured for SMTP, use transaction RZ10 to add the parameter **icm/server_port_1** for your default profile and assign it the value **PROT=SMTP,PORT=34\$\$**. Save and activate the profile and then restart all the ICM processes of your system in transaction SMICM. Then repeat the first step of the task.
 - a) If, during the previous step of this exercise, you discovered in transaction SMICM that SMTP is not configured, switch to transaction RZ10 and open the extended maintenance of the **DEFAULT** profile in change mode.



Hint: You may have to load the profiles by choosing *Utilities* → *Import profiles* → *Of active servers*.

- b) Choose *Create Parameter*. Enter **icm/server_port_1** as the parameter name and **PROT=SMTP,PORT=34\$\$** as the parameter value.
- c) Save your changes by choosing *Copy* → *Back* → *Copy* → *Back* → *Save*. If a dialog box appears with information about an incorrect parameter value, choose *Yes* and ensure that your parameter is displayed correctly. If you are prompted to do so, activate the profile at operating system level. Choose *Continue* to confirm the dialog box.
- d) Instead of now starting the entire SAP system, you can just start the ICM processes. To do so, call transaction SMICM and choose *Administration* → *ICM* → *Restart* → *Yes* and then *Administration* → *ICM* → *Exit Hard* → *Global*. Confirm the query by choosing *Yes*. Then choose *Services* again and check whether your changes have been made.

Task 3: Setting Up the Sending of E-Mails in the SAP System

Generate Internet addresses, set the default domain and receipt confirmation, and configure the SMTP node.

1. Assign all users in your client the Internet address **<UserID>@do-main##.sap.com**, where **##** is your (two-digit) group number.

Continued on next page

Then check the changes using user **ADM102-##**.

- a) Start report *RSADRCK7* (using transaction SA38, for example).
- b) In the *Domain* field, enter **domain##.sap.com** (where ## is your group number). Deselect the *Keep existing addresses* and *Test mode* checkboxes and set the *Use user names* checkbox.

Once you have chosen *Execute*, the system displays a log of all the changes made.

- c) In transaction SU01, enter user **ADM102-##** and choose *Display*. On the *Address* tab page, the value *ADM102-##@domain##.sap.com* (where ## is, again, your group number) should be stored under *E-Mail*.
2. In your SAP system, enter **domain##.sap.com** as the default domain.
 - a) Start SAPconnect Administration (transaction SCOT) and under *Settings* → *Default Domain*, enter the value **domain##.sap.com** (where ## is your group number).
 3. Configure SAPconnect so that no confirmation of receipt is expected for Internet mails.
 - a) Choose *Settings* → *Confirmation of Receipt*, and define that SAPconnect does **not expect receipt confirmation for Internet mail**.



Hint: This setting means that sent messages of the type Internet mail are immediately assigned the status “Completed” (otherwise, they remain in the status “In transit” until a confirmation of receipt is received).

In the SAP system, the sending application determines whether a confirmation of receipt is actually requested.

4. Set up the SMTP node in your SAP system so that e-mails addressed to recipients in the domain **training.sap.com** can be sent to the external mail server (set up by your instructor).



Hint: If the external mail server also operates as a Mail Transfer Agent (MTA), you could also use enter * as the SAPconnect domain. However, in the training landscape, the mail server does not forward any e-mails, but rather processes only the specified domain.

Continued on next page

- a) If you have not already done so, switch to *View* → *Node*.



Hint: You should see a “-” icon next to the SMTP node, as this node is not yet operational.

- b) Double-click the SMTP node and enter the following information:

<i>Description</i>	any
<i>Maximum waiting time...</i>	30 minutes
<i>Node in use</i>	Check
<i>Mail Host</i>	The name of the host on which your instructor set up the external mail server (such as twdf0042.wdf.sap.corp)
<i>Mail Port</i>	The port entered for the external mail server (typically 25)
<i>Code page</i>	4110 Unicode UTF-8

For *Supported address types*, choose *Internet* → *Set* → *Address area*, enter ***training.sap.com**, and confirm.

Choose *Continue* to save your settings.

- c) In the node display in transaction SCOT, check that the SMTP node no longer contains any “-” characters and that it appears when you expand the address range **@TRAINING.SAP.COM*.

Result

Your SMTP node is now ready for use and is responsible for all e-mails sent to the specified address range. It is this easy to connect to an SMTP-compatible mail server.

Continued on next page

Task 4: Sending an E-Mail from an SAP System

Create an e-mail and start the send process.

1. Create an e-mail to the recipient **ADM102-##@training.sap.com** in the SAP system, for which no confirmation of receipt is to be requested.
 - a) Call the SAP Business Workplace (transaction SBWP) and choose *New Message*.

In the new window, create a message (using any title and content). As soon as you have transferred the address **ADM102-##@training.sap.com** for the *Recipient* by choosing enter, the SAP system identifies from the structure of the address that it is an Internet address. Messages can be sent to different types of address (see the F4 help for the *Recip. Type* field).
 - b) Switch to the *Trans. Options* tab page **after** you have specified the *Recipient*. Under *Confirm Send Status*, specify that this is *Never* to be done.



Hint: The reason for this is that the “route back” to your SAP system has not yet been defined; it would therefore not be possible to deliver the confirmation e-mail.

- c) Finally, choose *Send...*
2. Start the send process manually.
 - a) View the information in SAPconnect Administration (transaction SCOT) under *View* → *System Status*. There should be a message with status “Waiting”.
 - b) Now choose the *Start Send Process* function for the *Address Type INT* (for Internet mail).

Use the default values under *No. Work Processes* and *Server group* and choose *Start*.
 - c) View the status once the send process is completed. If an error occurs, you can choose *Utilities* → *Overview of send orders* to analyze the cause of the error.

Continued on next page

3. Display the e-mails sent to the user **ADM102-##@training.sap.com** in Microsoft Outlook Express.
 - a) After you have run the function *Send and Receive All* in Outlook Express (by choosing the button or by choosing *Tools → Send and Receive → Send and Receive All*), all e-mails that have been sent to the specified recipient are displayed.

If you want, you can now send e-mails to neighboring groups.

4. **Optional:** Schedule the send process for Internet mails periodically (every five minutes). Then send a list output (such as report *SHOWCOLO*) to recipient **ADM102-##@training.sap.com** and observe how the output is sent during the next send process.

- a) In transaction SCOT, choose *View → Jobs*. The system displays the number of times the send process has already run in your client (you can change the evaluation period).
- b) Choose *Create* and enter a job name (such as **Send Internet e-mails**).

SAP delivers a variant, *SAP&CONNECTINT*, for this address type. Select the entry and choose *Schedule Job*.

On the next screen, adjust the time if required (you can view the system time by choosing *System → Status*) and then choose *Schedule Periodically*. As the period, enter **5 minutes** and choose *Create*.

The job that you have just created now appears in the job overview (transaction SM37).

- c) Call any list display in the SAP system (suggestion: Use transaction SA38 to execute report *SHOWCOLO*).

Choose *System → List → Send* and enter **ADM102-##@training.sap.com** as the recipient. Again, do not confirm the send status. The system proposes the report title as the default *Title* of the message. If desired, enter some text as the *Document contents*. Choose *Send* to transfer your message to SAPconnect.

Continued on next page

- d) The message is processed by the send process during the following five minutes. When the e-mail appears in Microsoft Outlook Express, the entry *Attach:* indicates that there is an attachment. Double-click the entry and display the attachment by choosing *Open*.



Hint: The security settings may prevent Microsoft Outlook Express from accessing the attachment. In this case, deselect the *Do not allow attachments to be saved or opened that could potentially be a virus* checkbox by choosing *Tools Options... Security*.



Note: By default, ABAP lists are converted to HTML format. As you can see from the selection options for *Output Formats for SAP Documents* when defining a SAPconnect node, other formats are also supported.

Result

Congratulations on successfully connecting your SAP system to a mail server.

Task 5: Optional: Receiving E-Mails in the SAP System

Set up Microsoft Outlook Express to send e-mails, and set up the SAP system to receive e-mails.

1. In your SAP system, create a user, **MAILDISP**, to distribute e-mails in the current client. This user should be of the type *System* and you should assign the authorization profile **S_A.SCON** shipped by SAP.
 - a) In User Maintenance (transaction SU01), create the user **MAILDISP** as described in the task. On the *Logon Data* tab page, set the user type *System*.



Hint: Users of the type *System* are intended for dialog-free communication between different systems and are excluded from the checks for expired passwords. For more information, see SAP Note 622464.

Continued on next page

2. Enter the user that you have just created in the virtual host for *SAPconnect* (transaction SICF). Remember to activate the virtual host after changing it.
 - a) On the initial screen of transaction SICF, select the hierarchy type **SERVICE** and choose *Execute*. On the following screen, double-click the *SAPconnect* entry. On the *Logon Data* tab page, switch to change mode. Enter the data for user **MAILDISP** (client, user, password, and language). Leave all other fields unchanged and save your changes. Create a local change request at this point, if appropriate.



Hint: If you receive an error message when you select the language for the user because a code page is not supported, you have to activate your language using report RSCPINST. To do so, add your language on the left-hand side of the initial screen for the report and then choose *Activate*.

- b) In transaction SICF, click the *SAPconnect* entry with the right mouse button and choose *SMTP Host* → *Activate* and confirm the subsequent dialog box by choosing *Yes*.



Hint: An SMTP server is required for each client of an SAP system in which e-mails can be received. You have now created the connection to a virtual mail host. If e-mails were also to be delivered to other clients in your SAP system, you would have to create additional virtual mail hosts for these clients in transaction SICF.

3. Start Microsoft Outlook Express on your server (as user **<sid>adm**). Check that the *Outgoing mail (SMTP)* server setting for your mail account points to the name of the host on which your SAP system is running (such as **twdf0044**).

Continued on next page

Important: Enter a valid port for your SAP system as the port for outbound e-mails (SMTP) (we suggest the port for the central instance). You determined the port information in task 2.

- a) As user **<sid>adm**, choose *Start → Programs → Outlook Express* at operating-system level.
- b) Under *Tools → Accounts... → Mail*, select your mail account and choose *Properties*. On the *Servers* tab page, check that the host name of your SAP system is entered for *Outgoing mail (SMTP)*.

Switch to the *Advanced* tab page and enter the correct port for *Outgoing mail (SMTP)* (such as 3410 for the groups with the QAS system). Save these values.

4. Use Microsoft Outlook Express to send an e-mail to **ADM102-##@domain##.sap.com** and check its arrival in the SAP system.
 - a) In Microsoft Outlook Express, choose *Create Mail* (or *File → New → Mail Message*) and create an e-mail for the recipient **ADM102-##@domain##.sap.com**.

Depending on the default setting, Microsoft Outlook Express sends the e-mail immediately. If the e-mail is still in the *Outbox* folder several seconds later, start the send process manually (by choosing *Send All* or the menu path *Tools → Send and Receive → Send All*).

- b) In the SAP system, call the SAP Business Workplace (transaction SBWP) as user **ADM102-##**. You will find your e-mail in the *Inbox*.

Result

You are now able to connect SMTP for an SAP system in both directions.

We wish you every success in implementing this in your company.



Lesson Summary

You should now be able to:

- State the steps required to connect the SAP system to a mail server
- Configure the SAP system for connection to a mail server

Related Information

For more information about configuring the mail connection, see the online documentation for SAP NetWeaver 7.0, area *SAPconnect (BC-SRV-COM)* (find, for example, by searching online documentation). In the *Administration → Inbound Distribution* area, you can also find information about distributing incoming mails.

For more information about the procedures for configuring an e-mail connection in the SAP system, see the following SAP Notes:

- SAP Note 455140: *Configuration of e-mail, fax, paging or SMS using SMTP*
- SAP Note 455127: *E-mail (SMTP) in different SAP releases*
- SAP Note 312690: *SAPconnect: Collective note*
- SAP Note 546147: *SMTP plug-in: MS Exchange sends only to port 25*
- SAP Note 104263: *Generating Internet addresses for users*
- SAP Notes 633265, 664833, 694151, and 883840: *SMTP PlugIn: Multi-codepage ability*
- SAP Note 690020: *SAPconnect send process hangs with large mails*
- SAP Note 607108: *Problem analysis when you send or receive e-mails*



Unit Summary

You should now be able to:

- Outline the function of SAPconnect
- Create a node for sending a remote mail to a different SAP system
- State the steps required to connect the SAP system to a mail server
- Configure the SAP system for connection to a mail server



Test Your Knowledge

1. Which of the following statements regarding SAPconnect are correct?

Choose the correct answer(s).

- ☐ A As of SAP Web AS 6.10, a Microsoft Exchange Infrastructure must be set up outside the SAP system to be able to send mail from SAP systems.
- ☐ B It is not possible to connect the UNIX-based *sendmail* to SAP systems.
- ☐ C SAPconnect allows you to send mail both by RFC and the SMTP plug-in of the SAP AS ABAP.
- ☐ D SAPconnect is configured cross-client.
- ☐ E A send process automatically runs periodically in every SAP system after the system installation.

2. The connection of a mail server to an SAP system to send e-mails using SMTP from the SAP system runs through an SAPconnect node.

Determine whether this statement is true or false.

- ☐ True
- ☐ False



Answers

1. Which of the following statements regarding SAPconnect are correct?

Answer: C

SAPconnect contains two methods for sending mails: using an RFC connection or directly using a plug-in of the AS ABAP. The other statements are incorrect.

2. The connection of a mail server to an SAP system to send e-mails using SMTP from the SAP system runs through an SAPconnect node.

Answer: True

To configure a send process for SMTP in the SAP system, you must, among other things, also have configured and activated an SMTP node in transaction SCOT (SAPconnect).



Course Summary

You should now be able to:

- To process basic tasks within the technology environment of SAP systems

Glossary

communication type

A communication type is a type of communication supported by SAPconnect, such as sending data by e-mail or fax, transferring data to archiving systems or communication services, and so on, that allow data to be sent to pagers, or as an SMS. Communication types are configured in SAPconnect.

F4 help

The F4 help provides you with input help for a field that is ready for input.

HTML

HyperText Markup Language (HTML): Document description language for creating HTML pages in the Internet. HTML documents have a uniform format and consist only of ASCII text. They can either be stored statically in the file system of the Web server or be generated dynamically at runtime by special programs. The Web server sends them to the Web browser, which interprets and displays them.

HTTP

Application protocol of the World Wide Web (WWW). The HyperText Transfer Protocol (HTTP) controls communication between the Web browser (the HTTP client) and the Web server (the HTTP server).

modification adjustment

If SAP objects are modified and then imported with a Support Package or release upgrade, the objects have to be compared when they are imported. If these objects are not compared, the modifications that have been made to the SAP objects are reset to the SAP delivery status.

MTA

Mail Transfer Agent; The program that is responsible for forwarding and delivering e-mails: When a mail is received from a Mail User Agent (MUA) (the actual e-mail program) or a different MTA, the MTA analyzes the mail and either sends it to the local user (that is, his or her MUA) or forwards it to a different MTA. The MTA that is still used most frequently in the Internet is sendmail.

output request

An output request contains the data from a spool request in a format for a particular printer model.

patch

To be able to correct smaller problems in the SAP system, individual corrections, known as single patches are available as SAP Notes.

Quick Link

Navigation technology for quick access to certain areas of the SAP Service Marketplace. To call a Quick Link, add the Quick Link directly at the end of the Web address, after a “/” (such as <http://service.sap.com/smp>).

SAP GUI for HTML

SAP GUI that runs in the Web browser, and generates HTML pages dynamically based on SAP screen layouts. Requires an SAP Internet Transaction Server (SAP ITS).

SAP Internet Transaction Server (SAP ITS)

The SAP Internet Transaction Server (SAP ITS) is an interface between the SAP system and the Internet. It allows users to communicate directly with the SAP system by starting business transactions, function modules, and reports from a Web browser. If a user calls an application, the request is received by SAP ITS. SAP ITS controls the communication and data exchange.

SAP Note

SAP Notes enable you to make adjustments on the basis of changes in legal requirements, correct errors and enhance existing functions, or make new functions available. An SAP Note mainly affects changes to an individual object. Compare also “Support Packages”.

SAP Service Marketplace

Central portal (URL <http://service.sap.com>) with services, information, and other offerings for SAP customers and partners.

SMTP

Simple Mail Transfer Protocol (SMTP) is an Internet standard for a *host-to-host* mail transport protocol. SMTP uses TCP and port 25.

Software Component Archive

Physical representation of a status of a software component. An SCA contains a specific number of Software Deployment Archives (SDAs), the set of which describes a precisely defined version status.

Software Deployment Archive

Delivery format for SAP applications in programming languages other than ABAP. It is a ZIP-compatible archive format that can act as a container for other archives.

SPAM/SAINT update

100% patch for the Support Package Manager (transaction SPAM) and the Add-On Installation Tool (transaction SAINT). The SPAM/SAINT update is used to implement the latest modifications.

spool request

A spool request contains information about data to be output, its formatting, and the printer model used.

Support Package

A Support Package enables you to make adjustments on the basis of changes in legal requirements, correct errors and enhance existing functions, or make new functions available. A Support Package contains a number of changed objects. Compare also “SAP Note” and “Support Package Stack”.

Collection of corrections for software errors in the SAP system. Support Packages are summarized in periodic intervals and made available by SAP.

Support Package Manager (SPAM)

Tool (transaction SPAM) for importing Support Packages. With the Support Package Manager the tool itself is patched too. See also “SPAM/SAINT update”.

Support Package Stack

A Support Package Stack is a recommended combination of Support Packages and other patches for an SAP application or an SAP NetWeaver component. Compare also “Support Package”.

TemSe

Abbreviation for Temporary Sequential file; file in which, among other things, data for spool requests and for background processing job logs is temporarily stored.

variant

Preassignment of the input fields of a selection screen for reports, for example to enable the execution of the report in the background.

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Feedback

SAP AG has made every effort in the preparation of this course to ensure the accuracy and completeness of the materials. If you have any corrections or suggestions for improvement, please record them in the appropriate place in the course evaluation.